

GROUNDWORK OF PSYCHOLOGY

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NAND KISHORE & BROS.,

BENARES

Price Rs. 3/8

1st. Edition 1942,
2nd. Edition 1947,

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Printed by Maltab Rai
Jnanamandal Yantralaya, Benares. 2004—

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PREFACE

Psychology is a growing science, each decade sees some startling discoveries made by workers in the various fields of Psychology. Some of the most valuable contributions to the science have been made by men who were not directly concerned with the work in Psychology. The Science of Medicine and the Science of Education have made some very important contributions to Psychology. They in turn have been equally benefited by the interpretations that Psychology gave to facts revealed by them

It is said, out of evil good comes. The last Great War brought into prominence two new fields of Psychology-Mental Testing and Psycho-analysis. Mental Tests were framed by Binet before the War but they came to prominence during the War, when they were used by Americans to select officers for the army Similarly, the psycho-analysis had in dealing with pathological cases of soldiers who were fighting in the War brought Psyco-analysis to prominence. Both these branches of Psychology are doing immence service to Education.

The book aims to present some fundamental notions of psychology that are valuable to general readers and teachers unacquainted with the subject. The language has been made as easy as is possible, consistent with the difficulty of the subject matter. The book is written on prac-

tically the same lines as my earlier book *Elements of Educational Psychology*. But I have gone a bit more in detail on some aspects of General psychology so that the book may be useful to such students as are beginners to the subject.

I express my heartfelt thanks to all those friends who helped me in writing this book. I particularly express my gratitude to Dr. S. K. Maitra, who has been encouraging me in all my literary activities and to Dr. B. L. Atreya, who gave me valuable suggestions and has been kind enough to go through the proof when the book was in the press.

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15th, December, 1941.

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CONTENTS

CHAPTER I

Introductory

	Page
Definition of Psychology	1
Branches of Psychology	2
Relation of Psychology to Education ..	4
Methods of Psychology	7
The Scope of Psychology	14

CHAPTER II

Nature and Nurture

The Meaning of Heredity	17
The Environmental Factor	18
Facts of Heredity	19
The Importance of Education	22
Laws of Heredity	24
Educational Significance of Heredity ..	29
Social Heredity	30

CHAPTER III

Reflexes and Instincts

Types of Human Behaviour	33
Reflexes	34
Instincts	38
Principles of Modification of Instincts ..	43
Utilizing the Instincts for Education ..	46

CHAPTER IV

Innate tendencies

Imitation	51
Emulation	54
Suggestion	55

	PAGE
Sympathy	57
Play	58

CHAPTER V
LEARNING

Nature of Learning	63
Methods of Learning	64
Types of Learning	66
Laws of Learning	68
Plateaux of Learning	70
Efficiency in Learning	71
Fatigue in Learning	72

CHAPTER VI
HABIT

Nature of Habit	75
Basis of Habit	76
Value of Habit	78
Importance of Habit to Education ..	80
Laws of Habit Formation	82
How to form Habits in a Child	84
Elimination of Bad Habits	85

CHAPTER VII
EMOTIONS

Nature of Emotions	88
Physiology of Emotions	89
James-Lange Theory	91
Value of Emotions to Life	91
Emotions and Health	92
Training of Emotions	93
Emotional Habits	96
Building a Sentiment	97

CHAPTER VII A

Attention

	Page
Nature of Attention	95
Conditions of Attention	102
Types of Attention	104
Attention in Education	105

CHAPTER VIII

Sensation and Perception

Nature of Sensation	112
Sense Training	115
Proper Use of Sense Organs	117
Perception	118
Nature of Children's Percepts	120
Observation	122

CHAPTER IX

Memory

Nature of Memory	125
Learning	126
Retention	131
Laws of Association	134
Recall	136
Recognition	139
Forgetting	140
Training of Memory	141

CHAPTER X

Imagination

Nature of Imagination	145
Individual Differences in Mental Imagery ..	146
Training Children's Imagination	149

CHAPTER XI

THINKING

	PAGE
Nature of Thinking	154
Conception	156
Teaching of Concepts	161
Judgment	164
Reasoning	165

CHAPTER XII

WILL AND CHARACTER

Nature of Will	173
Weaknesses of Will	177
Nature of Character	181
Formation of Character	185

CHAPTER XIII

MENTAL TESTING

The Aim of Mental Testing	198
Early Mental Tests	199
Gradation of Intelligence	20[illegible]
Types of Tests	20[illegible]
Scales of Intelligence	20[illegible]
Nature of Intelligence	208
Measurement of Achievement	210
Intelligence Testing in India	212

CHAPTER XIV

THE UNCONSCIOUS

Changes in the Conception of the Mind ..	216
Dreams and Day-dreams	218
Mental Conflict	220
The Unconscious in Childhood	220

CHAPTER I

INTRODUCTORY

DEFINITION OF PSYCHOLOGY

Psychology is often defined as the science of the mind. It studies such mental states as perceiving, imagining, remembering, thinking, feeling and willing. The mind is not something over and above these states. The states themselves taken together are called the mind. Hence Psychology may be more accurately defined as the science that studies the mental processes.

The mental processes, however, express themselves in the behaviour of the individuals. Thus Psychology is the science that studies human behaviour—its distinctive traits, causes and conditions. Supposing, a man is angry. He behaves in this state of mind in an abnormal way. The psychologist here will note the peculiar forms of behaviour of the angry man. He will try to study the mental state in which anger occurs. He will further try to know how anger is heightened or subdued. Thus Psychology studies human behaviour in so far as that behaviour reflects certain mental events.

GROWTH OF PSYCHOLOGY

Psychology is one of the youngest of sciences. It developed into a science during the nineteenth

century. In the seventeenth and eighteenth centuries also there were some thinkers who claimed to be Psychologists. But during that period Psychology was only a handmaid to Metaphysics. At present however, Psychology is recognized as a very important science. It has evolved a technique and a method of its own which are very much like the methods of other sciences. Among the social sciences it now occupies an important place. No study of a social science is regarded complete which does not presume a knowledge of Psychology. Again psychologists at present apply the experimental method, which makes it one of the experimental sciences like Biology or Physics.

BRANCHES OF PSYCHOLOGY

Psychology has several branches, namely, General Psychology, Social Psychology, Abnormal Psychology Animal Psychology, Educational Psychology. The names are usually given according to the of data studied. Thus General Psychology studies the various mental processes and behaviour of an individual, more or less in isolation from the group in which he lives Social Psychology deals with the behaviour of the individual in relation to society. Thus, for instance, there is an inherited tendency in every individual to imitate others. This innate tendency is studied both in General Psychology and in Social Psychology, but whereas the one studies the origin, development and the modification of this tende-

[f]rom the point of view of the individual, the other [s]tudies it from that of the group. The latter is more [c]oncerned with the characteristic manifestations of [t]his tendency and with the laws of its working in society. Social Psychology, in other words, tries to reveal the social significance of imitation rather than its significance as a factor in the development of individual life.

Abnormal Psychology studies the individual as he thinks, feels and behaves in an abnormal state of mind. Such phenomena as fixations, hysteria, obscessions, dreams, somnambulism and various forms of dissociation of personality are studied in Abnormal Psychology. Psycho-analysis, which also studies abnormal phenomena of the mental life of an individual, is an off-shoot of this science. During the present century Psycho-analysis has made great progress and is proving of immense value in every walk of human life.

Animal Psychology or Comparative Psychology [s]tudies the behaviour of animals in different situations. [T]he study of animal behaviour has proved of very great help in studying the behaviour of man. We [h]e ru the true nature of instincts only by studying the he p[r]iour of animals. In man the instincts are not nto h[u] found in their original form. We get usually in [o]nly modified instincts. If we want to study [i]ve [i]cts as they really are, we should study the life of [a]nt [a]ls.

[T]e abi Educational Psychology studies the behaviour of [o]n th[e] ild from the point of view of his education. It

is a branch of Applied Psychology. When Psychology is applied to any field of human activities, it receives a name indicating those activities. Thus besides Educational Psychology, we have Commercial Psychology, Industrial Psychology and the Psychology of Criminals.

RELATION OF PSYCHOLOGY TO EDUCATION

There is a very intimate relation between Psychology and Education. It was a Swiss school-master and reformer Pestalozzi who first enunciated the doctrine that all true education must be based on Psychology. The one aim of his life was to psychologize education. He set up an ideal for all the educationists of the world and now we find that no one is thought competent to speak on the problem of education who has not a sound knowledge of Psychology. Every teacher in the school must know the fundamental principles of the working of the human mind ; he must be conversant with the nature of the child before he can be considered useful or competent for his job. Now-a-days everywhere in the world teachers are required to undergo a course of formal training and learn psychologically sound methods of imparting knowledge.

There was a time when it was thought that a teacher need not study Psychology. Teaching, it was argued, is an art and an art requires practical skill. Hence, they asserted, the study of Psychology can

no way improve a teacher. He would rather become less efficient in his work due to his acquiring a peculiar habit that characterizes psychologists, of looking into their own minds. It was further suggested that education is idealistic in its attitude towards human nature, whereas the attitude of a scientist is realistic; the one is synthetic in outlook, the other is analytic. Hence the psychological attitude is incompatible with the attitude of the educator. It was believed that the teacher would cease to be a source of inspiration to the child if he acquired the psychological attitude through a course of study in Psychology.

The above arguments have a certain amount of validity; but they simply prove that the teacher has not to turn himself into a mere psychologist and make his class room a psychological laboratory He must be a man of high ideals who believes in the nobility of his profession. He has to help the child to manifest the perfection in him. But his knowledge of Psychology cannot be considered a hindrance to this. He has surely to be skilled in his art. His skill, however, will bring forth better results if he follows not merely the rule of the thumb. but judiciously makes use of the principles, he has learnt, through a deeper insight into human nature.

It is true to say that a good teacher may not have much knowledge of psychology and a good student of Psychology may be an indifferent teacher; for the ability to teach depends not merely on the information that Psychology gives about the working of human

mind, but also on individual resourcefulness. A good student of Psychology may not be so resourceful as skilful teacher; yet the knowledge of Psychology will certainly prevent the young teacher from committing many blunders and learning the art of teaching at the cost of the students. The skilful teacher will surely do much better if he acquires besides skill a sound knowledge of Psychology. The skilful teacher usually relies on the rule of the thumb; but there are occasions when this may not work well and then one may have to look to sound psychological principles to guide oneself in one's task.

The child is the material with which the teacher has to work and no workman is considered competent to do his job well who does not know the nature of the material he is using. The teacher should not merely be a master of the subject he teaches, he should also thoroughly know the nature of the child who is taught by him. As John Adam said, "The verb of teaching governs two accusatives, one the person and another the thing—the teacher taught John Latin. The teacher should know John as well as Latin."

Knowledge of Psychology, it is true, does not help us in determining the aim of education. For this we have to look to Moral Philosophy for guidance. But in telling whether a particular aim is practically realisable or not, Psychology will surely help us. Whatever may be conceived as the aim of education, for the achievement of that aim modification of the behaviour of the individual will always be neces-

sary. Now, in modifying the behaviour of an individual successfully, Psychology has proved immensely useful. We can know the hidden springs of the actions of an individual through a knowledge of Psychology and thus can better succeed in bringing about changes in the conduct of the child. Teachers ignorant of the child mind sometimes mishandle children and thus do them incalculable harm. They shape their character in a wrong fashion. Such a child becomes an unhappy adult and a social nuisance. Hence it is imperative on the part of the teacher to have a sound knowledge of Psychology. Psychology, thus, is in every way indispensable to Education

METHODS OF PSYCHOLOGY

Every science has a certain method or methods of study. The most common methods which the natural sciences adopt are *observation* and *experiment*. Psychology as a science, adopts these methods too. Besides these, Psychology makes use of *introspection*, the *comparative method* and the *questionaire* method. Quite recently a new method has been added to those mentioned above. This is the method of *Psycho-analysis*. It would be worth while to note the peculiarities of these methods and to know their uses as well as their limitations.

INTROSPECTION—Instrospection is said to be the peculiar method of Psychology. This consists in trying to understand the nature of mental phenomena

by looking within one's own mind and studying them as they exist in any state of consciousness. Thus, for instance, if I want to know the nature of anger, I must look within myself when anger comes: I should try to know the conditions of the arousal of anger, the peculiarity of the mental experience, and its bodily manifestations. When I am attending to an object, I should attend to the object as well as to the attentive process of my mind. Thus alone can I know the nature of "attention."

There are many objections raised against this method. Firstly, it is pointed out that the method is subjective. Secondly, the actual experience is said to be not available to observation; the experience either disappears or tends to be modified as soon as one begins to introspect it. Thus anger no longer remains anger when one begins to study the state of one's anger. The effort of knowing the nature of a mental state through introspection is like knowing the nature of darkness with the help of a lamp: where the latter appears the former cannot exist. Lastly, it has been pointed out that the method can be practised only by a few highly developed minds; but what they thus obtain as the nature of a mental phenomena may not be true of less developed minds.

These objectives have been met by psychologists like Stout and McDougall. According to most psychologists if introspection is not possible, psychology itself is not possible. The only way to understand the thoughts, feelings and motives of action of other men

is by knowing how they arise in our own minds. There is only one individual whom I know directly and that is myself; others I know only indirectly. I interpret the behaviour of others in the light of my own experience known through introspection. It is true that a training is required to use introspection, but so also do the methods of other sciences require training. As for the difficulty in availing the data, it is actually overcome by minds that have a proper training. These data are supplemented by what other people say of their mental experience and what we observe in their behaviour as expressing the experience. The most formidable objection is that the method is subjective. But it is not right to characterize it thus. Though the psychologist directly studies his own inner experience, he always compares this with the experiences of other men and is not satisfied till he has attained to an objective stand-point.

2. OBSERVATION—Every science uses observation as a method of its study; so does Psychology. We can know a great deal about the mental life of individuals by studying their behaviour through careful observation. In the case of Educational Psychology this method has proved of great value. The child does not express his own feelings. We have to know them only as we find them shown in his behaviour. The Behaviourist school of Psychology would do away with introspection altogether and would recommend the use of observation alone instead.

The method of observation aims at knowing the child as he lives and moves in the natural environment. The psychologist quietly watches the movements, actions and gestures of the child and puts down his observations in a note-book. There are, however, certain difficulties in the case of this method. They must be overcome. The greatest obstacle in gathering correct data through this method is the observer's own mind. The observer is an adult whereas his subject is a child. The adult and the child live in two different realms, hence it is not easy for the one to know the thoughts and feelings of the other or to properly interpret the corresponding behaviour. The understanding of the psychic life comes directly to each one of us for himself alone ; we know only our own perceptions, feelings and will directly by self-study. We know the mental life of other people only by interpretting the signs they show in their behaviour or utterances. The child differs from us so much that it is difficult for us to interpret his feelings and thoughts. With certain precautions, however, we can make our observations accurate and reliable. The precautions are as follows :—

(1) We should make clear to ourselves the distinction between what is observed and what is interpretted or inferred and make a record of each separately.

(2) Conclusion should, as far as possible, accord with the child nature. We should take into account

the vagueness of his experience, his spontaneity and simplicity.

(3) No general conclusions, assertions, explanations should be made that are not justified by actual observation.

The observer has to be free from all prejudices about child nature and look at his behaviour from a detached view-point. This implies that the observer should have a true scientific spirit. But only trained psychologists can have such a spirit. The psychologist, however, labours under a serious difficulty. If he takes to observing many children he would be a stranger to them. But the child will not behave as freely before a stranger as he would otherwise. The child feels free with his parents and in some cases with his teachers. Hence they alone can observe him best. This means that unless the parents and the teachers themselves acquire psychological training proper observation of children is not possible.

Experimental Method—The method consists in observing the child under known and controlled conditions. An experiment is nothing but observation under controlled conditions. We can study the sense acuity of children, their span of attention, power of memorizing facts, power of learning and the phenomena of fatigue through the experimental method.

There are, however, serious drawbacks of this method. An experiment carries with it an artificiality which destroys the natural spontaneity of the child. An experiment is usually made in a Psychological

laboratory. This puts the child in an unnatural environment and it also begins to behave in an artificial manner. There is a lack of intimacy between it and the experimentist. Hence it is difficult to get correct data about the mental life of the child through this method. This method, therefore, cannot be used as freely in the study of Educational Psychology as it can be done in the case of other sciences. In certain cases, however the method has proved very useful. Thus through this method children's power of memorizing is correctly determined At present there is much experimental work going on in testing the intelligence of children. These experiments are bringing out valuable results

Comparative method—By this method we study human mind with the help of the animal mind. Thus instincts of children and their play activities can be better understood by observing the instincts and the plays of young ones of other animals. Likewise the emotional life of human beings can also be better understood by knowing the emotional life of animals.

But we have to guard ourselves against false analogies. The mind of human beings is similar to the animal mind only in certain respects, but there are very marked differences between the two. The instincts of animals, for instance, are highly differentiated from the very beginning; this is not so in the case of man. Unless we remember the important points of contrast, we are likely to misinterpret the human behaviour.

5 THE QUESTIONAIRE METHOD—This method has proved very valuable in studying the child mind. It consists in framing a set of questions on particular aspects of the behaviour of the child, his interests or development. The questions are sent to parents and teachers. Sometimes questions are also given to grown up children. The answers to these questions require the use of very few words, usually 'yes' or 'no'. This method economizes the time required to observe the behaviour of individual children. Moreover, the opinions of a very large number of persons within a very short time can be got Our conclusions are verified by a reference to the opinions of others Well-directed questions bring responses which are of immense value in knowing the nature of the child. The questionaire method has generally increased the interest of the public in the life of the child.

There are, however, certain limitations to this method. 1 Questions can be put only to educated persons and not to all persons. But any conclusion based on the opinion of a particular section of society is likely to be one sided. A student of the child mind has to know the mind of children of different levels of society. He has to weigh and judge the opinions of all kinds of people. Then only his conclusions can be valid.

But when this method is used to supplement the work of other methods it proves immensely valuable. We cannot rely on any one of the methods. We have to make use of different methods from time to time.

PSYCHO-ANALYSIS—Before the beginning of the present century the psychologists used to study only the conscious mind. But quite recently the conception of human mind has changed and the psychologist not only studies the conscious processes of the mind but the unconscious processes also. The unconscious mind of an individual lies hidden from his view. A man himself may not know the motives of his own action. The method by which this hidden region of the mind is explored is called Psycho-analysis. The psycho-analyst studies the dreams of the subject, his gestures and unguarded utterances, his mistakes and mannerisms. He sometimes subjects him to hypnosis and thus tries to draw out what is repressed or what is lying hidden from the gaze of the conscious mind. Psycho-analysis has developed by itself into a science, but it is an off-shoot of Psychology. The researches in Psycho analysis have proved very valuable to the educator. We shall deal in detail in a separate chapter the various technique that psycho-analysis employs to study the human mind.

THE SCOPE OF PSYCOOLOGY

The scope of a subject is limited by its definition. Psychology is a science of the mind. Hence it studies the mental processes such as thinking, feeling and willing in their various forms. Usually the mental life of an individual is conceived of in three aspects thinking or cognition, feeling or affection and willing

or conation. Some psychologists begin the treatment of the subject with cognition, some with conation, and a few with affection. But the three aspects are so inextricably mixed with each other that it is impossible to conceive of any of them without a proper understanding of the rest. We may classify the three aspects as follows:—

HUMAN MIND

Cognition	Conation	Affection
1. Sensation	1. Reflexes	1. Feelings
2. Perception	2 Instincts	3 Emotions
3. Memory	3. Voluntary actions	3. Moods
4. Imagination	4. Habits	4. Sentiments
5 Thinking and reasoning	5. Character	5. Temperaments.

The psychologist has to study each of the above aspects of the human mind In Educational Psychology we have to study them from the educational point of view.

EXERCISES.

1. Define Psychology. Is it correct to characterize it as a science ?
2. What is the relation of psychology to Education ? Why should a teacher have a training in psychology ?
3. What is introspection ? What are the objections urged against this method ? Are the objections valid ?

4. Distinguish between observation and experiment and point out their relative values in the study of the child mind.
5. What is the scope of the subject of psychology? Give the nature of the problems studied by it.
6. "The verb of teaching governs two accusatives, one the person and another the thing"—Elucidate the statement and bring out its full educational implication.
7. A person may be a good psychologist but not a good teacher—How is it possible ?
8. What help can a psychologist render to a teacher in managing a class of naughty children? Do you agree with the view that when a boy grows naughty the fault lies as much with the teacher as it lies with the child ?

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3. Drever: *An Introduction to the Psychology of Education.*
4. Morgen: *Child Psychology.*
5. Stern: *Psychology of Early Childhood.*

CHAPTER IV

NATURE AND NURTURE

The growth of the child is dependent on two factors—nature and nurture or heredity and environment. There are some writers who think that the first factor is more important whereas there are others who consider the second factor to be more important. In the present chapter we shall consider the views of these opposite schools of thought and try to find out where to strike the balance. But before we take up this task, we must make clear to ourselves what is exactly meant by heredity and environment as factors in the development of the child.

THE MEANING OF HEREDITY

By heredity is meant the force or the tendency due to which one individual resembles another of the same race. The facts of heredity are commonly stated by the saying that the like tends to beget the like or that the offsprings resemble their progenitors. In a more comprehensive sense it includes all those traits both of likeness and unlikeness that are potentially present in the fertilized ovum or the zygote. Every trait which the individual later on manifests is contained in the zygote.

Due to the force of heredity the race remains remarkably constant from generation to generation

despite remarkable changes in the environment. The biologists assert that the environment cannot permanently affect the race although it may profoundly affect a single generation. Children receive the mental and physical traits from their parents due to heredity. The child resembles his father or the mother in appearance, physical constitution, in stature, and even in intelligence, interests and habits of thoughts and action. It is a popular belief that the children of intelligent and good parents are intelligent and good, whereas those of the stupid and wicked are stupid and wicked. This belief, though extravagant, implies that heredity is very tenacious and the education of the child has to take into view this force.

THE ENVIRONMENTAL FACTOR

We have cleared above the meaning of the term "heredity". Now we have to understand the exact connotation of the term "environment" which is another important factor in the development of the child. By environment are meant all those forces which modify the native behaviour of the child. It includes both the physical and the social conditions in which the child grows. The various kinds of influences of parents, teachers and society on the child's behaviour are comprehended by the term environment. Education, in as much as it aims at moulding the native behaviour of the child, is an environmental factor. There are a number of facts of an individual's life that we unthinkingly attribute to heredity but which on

mature thought are found to be facts of environments. The teacher has to be very careful in distinguishing the two classes of facts; he need not attribute to heredity what is really due to environment.

FACTS OF HEREDITY

Scholars interested in studying family histories have brought to light certain facts which have increased men's belief in the tenacity of the force of heredity. The studies of Francis Galton, Karl Pearson, Dugdale, Dr. H. H. Goddard and Dr. A. E. Winship deserve special notice in this connection.

THE BEHAVIOUR OF TWINS—Francis Galton made a special study of twins. He brought to light eight histories of twins who behaved throughout their lives like clocks turned over by the same factory, and wound at the same time. We come across many twins who in their physical built, stature, appearance look so much like each other that it is difficult to distinguish the one from the other. In mental equipment, such as intelligence, interests and temperament also the twins have been found to resemble each other much more than any other two individuals would do.*

BIOGRAPHIES OF EMINENT MEN—Galton also made a study of the biographies of 977 eminent men, such as statesmen, ministers, judges and scholars. He brought out the results of his study in a book called

* The writer knows two pairs of twins the Kekare brothers and the Karanskar brothers. Only people who intimately know them can distinguish one brother from the other of these pairs. At

the Hereditary Genius. It was found that the eminent men had also eminent persons as their relatives. The results are shown by the table given below—

574 Relations (of 977 Eminent Men)
- 362 Near Relatives
  - Fathers 94
  - Brothers 123
  - Sons 145
- 212 Distant Relatives
  - Grand fathers 50
  - Grand sons 42
  - Uncles 54
  - Nephews 66

DARWIN-GALTON FAMILY—Karl Pearson made a study of the family tree of Wedgwood-Darwin-Galton family. He traced the history of this family for over a thousand years. He discovered that the family had produced some of the most useful and influential men of society during successive generations. Many geniuses were born in the family. For five generations in direct descent persons of this family have been members of the Royal Society of England.

JUKES FAMILY—Dugdale and Estabrooks made a study of the family of Jukes. Jukes was a shiftless hunter and fisher whose sons married women of very

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one time the Kekare brothers were reading in the same class the same subject, played the same game, wore the same dress and did everything so much like each other that one often confounded the one with the other The Karanskar brothers present the same difficulty. Their physical built, facial appearance, manners, speech, intelligence, activities, tastes, temperaments and character are so much alike that one does not know how to distinguish them. Both of them are students of the Benares Hindu University and are active nationalists.

degenerate family and produced a race of invalids, imbeciles and criminals. 2820 people of this family were studied. Of these 366 were paupers, 171 criminals and the lives of 10 were sacrificed to murder. In school 458 had retardation of two or more years, 350 did fairly well, whereas 166 are known not to have attended any school. There were 282 intemperate persons in the family and 277 harlots. The total cost to the State in maintaining this family is estimated to be over twenty million dollars.

KOLLIKOK FAMILY—Dr. Goddard studied the Kollikok family. Martin Kollikok married first a feeble-minded lady and later a Quackeress of good stock. There is a marked difference between the progeny that he had through the first and the second wife. Of the 480 descendents from his first wife only 46 were known to be normal, 143 were feeble-minded and the rest were found either of doubtful intelligence or remained unknown. Morally too most of them were found perverse or criminally minded. In contrast with the descendents of the first wife, the progeny through the second wife was found full of brilliant persons. Out of 496 all except two were either supernormal or normal. They included among them, lawyers, doctors, teachers, traders, governors etc,. None went to the asylum

EDWARD FAMILY—Winship studied the descendents of a gentleman named Edward through his two wives—one a brilliant lady named Elizabeth and another a normal woman. Many of the descendents from his first wife became great men in life, whereas none

attained to eminence from his second wife. From the first out of 1394 persons 896 rose to eminence in life.

THE IMPORTANCE OF EDUCATION

The above facts seem to indicate that the growth of each child is predetermined and that education can do very little for him. Educational enthusiasts, however, would not rest satisfied with such a conclusion. They have brought forward other facts where education has brought about marvellous improvement in the lives of children of poor stock. They have criticised the conclusions of Galton and others and pointed out that the method of investigation itself was faulty.

THE TABULA RASA THEORY.—Locke in the seventeenth century preached that the mind is originally a *tabula rasa* or a clean slate. Upon this slate impressions are created due to the sense organs coming in contact with the environment. Thus at birth the minds of all children are alike, differences that appear in them are the products of environment. Hence it is education that is responsible for the vast intellect of one man and the poverty of it in another.

THE DOCTRINE OF HELVETIUS.—The theory of Locke about the nature of human mind was actually made use of by Helvetius (1715-71). Since all the ideas come to the mind only through the senses, the difference in the knowledge of any two persons must be due to their being brought up in two different environments. If the two persons from the beginning of their life be

made to receive the same sensations their minds would be exactly identical. Thus according to Helvetius, all differences among different men in abilities, tastes and character are due to a single cause, namely, education.

ROBERT OWEN'S VIEW—Robert Owen (1771–1858) supported the above doctrine of Helvetius and tried to make use of it in actual practice. According to him no one can form his own opinions or character; the environment in which one lives is responsible for making them what they are Hence it is education alone by which individuals and communities can be lifted up intellectually as well as morally.

THE HERBARTIAN VIEW—The Herbartians maintain the view that the soul consists of nothing but acquired ideas. Hence improvement of life of a man can be made only through education. Persons, who have the misfortune to receive no education or get improper education remain undeveloped both in intelligence and in character.

Hayward, taking his stand on Herbartian psychology, said that the arguments brought forward by the followers of Galton to prove the rigidity of the law of Heredity are misleading. He admitted that there are surely inherited tendencies, but these tendencies are so plastic that nurture can mould them in almost any way. The examples of such institutions as Barnardo Homes prove that children of low stock can be improved to such an extent that they may do as well in life as those coming from better families. Hence psychical heredity, according to him, is "a spectre

the race cultured. An implication of this law is that if the educational efforts of a single generation are relaxed, the most civilized race would relapse into barbarism.'

The above law was enunciated by Weismann. Weismann experimented on rats. He cut the tails of rats for sixty successive generations, but each generation was found to have a tail at birth. From this Weismann concluded that acquired traits are not transmitted.

This law, however, is not universally accepted. The experiments of McDougall on improvement in the learning power of rats of successive generations show a contrary result. McDougall put the rats in a tank from which there were two ways of escape. The easier way gave an electric shock. The rats wanted to avoid this shock. But the first generation committed 165 mistakes before it learnt to go by the other way and thus avoid the shock. The number of mistakes, however, went on decreasing from generation to generation, till at last the twenty-third generation committed only 25 mistakes.

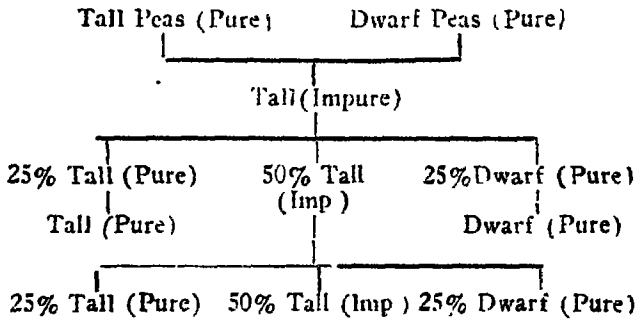
An experiment of Professor Pavlov on conditioning of reflexes also contradicts the conclusion of Weismann. Professor Pavlov trained some white mice to run to the feeding place on the ringing of an electric bell. For the first generation 300 lessons were required. Succeeding generations required a diminishing number of lessons, the fifth generation requiring only five.

THE LAW OF VARIATION—This law states that though it is true that like tends to beget the like variations also occur from time to time in the members of a species. The evolution of the species is possible only due to the working of this law. Darwin explains these variations as *chance occurrences*. According to Lamarck, variations arise due to an *inner urge* of the organism to adjust itself to changed environment. Thus it is that the giraffe has developed a long neck because of the necessity to get food from tall trees. Its neck has gradually lengthened by the efforts of successive generations to stretch it. Darwin explains such phenomena as chance occurrence and preservation of the favourable trait through the *law of natural selection*. Only those individuals of a species survive that have favourable traits, the rest die. The former leave their progenies behind. Thus evolution takes place in a species.

Distribution of variation among the individuals of a particular race follows the Law of Probability. The variation in traits when represented by curve will give the Normal Frequency curve. The shape of the curve is like a bell. This shows that the largest number in any race always of average ability. Those who deviate from the normal type are fewer in number. This is so in the case of the height of men, their weight and intelligence. Men of average height are always in the largest number, the dwarfs and giants are but few. So too are the idiots and the geniuses rare. We generally find men of average ability.

THE LAW OF REGRESSION—This law states that in successive generations the variants tend to move towards the average. In height, the shorter ones move up and the taller ones move down. Galton's study shows that fathers who were 72 inches in height got sons who could grow only to 70·8 inches; whereas those 66 inches tall had sons 68·3 inches tall. The average height of the race was calculated 69·14 inches. Thus we find that in successive generations the abnormalities or pronounced variations tend to disappear.

MENDELISM—One form of the above law is Mendelism. Mendel's law may be stated thus. If by chance hybrids produced in a race, they tend to disappear. There is always a regression to the pure type. Mendel experimented in the cross-fertilization of peas of two kinds—Tall and Dwarf—and got the following results:—



From the above results it is obvious that the hybrids tend to disappear, At each successive gen

tion, from the hybrids 50% pure types are born which in turn produce only pure types.

EDUCATIONAL SIGNIFICANCE OF HEREDITY

The tenacity of the law of heredity shows that there are limitations to the educability of an individual. There are individual differences and the educator has to take note of these differences. No effort of the educator will obliterate the differences that exist in the aptitudes of the individuals. "The most enthusiastic educator", says McDougall, "will hardly maintain that man's superiority to the gorilla is wholly due to more advantageous environment and greater educational opportunities. It is no less clear that men differ widely in respect of their native capacities"* Schooling cannot do everything for the child. There are some children who excel in a particular line of activity, there are others who excel in a great many, while there are sad cases of a few who do not seem to profit by education at all.

The results of intelligence tests confirm the view that there are congenital differences among the abilities and aptitudes of different children. Education brings the best result only when one keeps in view these differences and each child is educated in a manner that would suit his abilities and aptitudes. Education can do much for the child. But much of our educational work would go to waste if we forget the funda-

* McDougall: *Energies of Man*

mental fact that the evolution of the life of the child is as much dependent on heredity as on environment. No one factor need be over emphasised. Nature or heredity provides whatever potentialities we possess, nurture or environment determines whether they shall be actualised or not. There are certain restrictions to the educable capacity of each child and these restrictions are provided by heredity. A feeble-minded child cannot be educated to the same extent as a normal child. The teacher has no control over this hereditary factor. But given the best heredity, a child may make a wreck of his life due to lack of proper education.

SOCIAL HEREDITY

Here we must distinguish between what is strictly biological heredity and social heredity which is nothing but another name for environment. Social heredity, in other words, is a form of educational environment that affects more than a single generation. It includes customs, laws, traditions and knowledge that mankind passes from generation to generation. "Mankind through countless generations," says Sandiford, "has stored his acquisitions of knowledge in books, pictures, works of arts and utility, laws and traditions. These become environmental stimuli of powerful potency to succeeding generations, that may have natural intelligence to profit by them. A parent who surrounds his children with good books and good pictures in a tasteful home, provides them with opportunities for travel and converses with them intelligently is providing them

with social heritage of the highest value." * This social heritage has to be acquired afresh by each generation. The importance of social heritage is very great in the life of man. Without it man would be powerless in fighting out the battle of existence inspite of his good biological heredity. This is under the control of the educators. Hence to make the life of each child valuable, the parents, the teachers and the state should see that the child gets proper facilities to benefit from the labours of society.

EXERCISES.

1. Discuss the relative importance of heredity and environment in the education of the child.
2. What is meant by "non-transmission of acquired traits"? Discuss the doctrine and bring out its educational significance.
3. "Psychical heredity is a spectre which vanishes as soon as one penetrates beyond statistical abstractions to the concrete facts of life"—Discuss.
4. State some of the laws of heredity. Explain them with examples.
5. What is meant by "social heredity"?—Distinguish it from biological heredity and show that the duty of the educator is with regard to social heredity of children.

* *Educational Psychology*, pp 10.

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* *Educational Psychology*, pp 10

6. What is meant by individual differences among children? How do you account for them? Point out the educational significance of these differences.

7. Explain fully the Law of Variation. How are the variations distributed?

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4. T. P. Nunn: *Education Its Data and First Principles.*
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CHAPTER III.

REFLEXES AND INSTINCTS

'Education aims at modifying the native behaviour of the child. The child when born is, in a sense, a little animal. Through education he reaches the civilized state of existence. In order that the educator may be able successfully to do the task of reclaiming the child from his animality ssary that
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No thought is required. The reflexes are so deeply rooted in the organism that even when by an effort of will one tries to prevent the occurrence of the act, one fails in doing so. The reflex actions involve only a few nervous co-ordinations. In a simple reflex a sense organ, a sensory-nerve, a nerve centre, a motor nerve and muscles are involved

CHARACTERISTICS OF REFLEXES—Reflex actions have generally the following characteristics:—

(i) They are very *quick in operation*. As soon as the stimulus presents itself, the response immediately follows.

(ii) They are very *definite*. A particular stimulus gives rise to a particular response in a purely mechanical manner.

(iii) The reflex actions are *involuntary and often unconscious*. Thus, for instance, the winking of the eyes takes place involuntarily and we seldom become aware of it. We never become aware of the pupillary reflex.

(iv) They are *permanent* as they are inherent in the organism.

(v) They are *unlearned* and are always ready for action.

TYPICAL REFLEXES—The human organism is capable of many reflex actions, Their number is about fifty. Some typical reflexes are the pupillary reflex, the winking reflex, the sneezing reflex and the

out foreign matter from the nostrils and the fourth brings about automatic movement of the leg.

There are other reflexes besides these such as, gasping, crying, vomitting, yawning, blushing, laughing, coughing, weeping, salivating, perspiring, etc.

THE VALUE OF REFLEX ACTIONS—Reflex actions are Nature's devices to protect the organism from sudden harm. Take the case of sneezing reflex. If an insect gets into one of the nostrils, the sneeze that follows, at once throws it out. Supposing one had to think before one could sneeze, in that case the insect would get upto the delicate part of the head and before one could judge as to what it is, it would have reached a place from which it could not be easily taken out.

CONDITIONING OF REFLEXES—The reflex actions are the simplest devices of Nature to preserve the organism from harm. They enable the organism to live, but its progress is dependent on other conditions. The progress of an individual is an outcome of learning. Some psychologists have called the learning process as conditioning of the reflexes. According to the Behaviourist School of Psychology, there is no fundamental difference between a reflex action and the more complex forms of human behaviour. The complex patterns are a combination of many reflexes. Thus instincts, according to it, are *chained reflexes*, and habits are nothing but conditioned reflexes A conditioned reflex is a reflex action which has been modified by certain conditions in the environment. In the case of a condition-

reflex, the response is evoked by a different stimulus. from the one with which it was originally connected. Sometimes the response connected with the original stimulus is itself modified.

Professor Pavlov experimented on conditioning of reflexes in the case of various animals. A typical case of a conditioned reflex may be cited here. Pavlov showed a dog a piece of meat and noted that there was secretion of the saliva. If at this time he rang a bell, it did not result in any increase in the secretion. Then he rang the bell each time meat was shown to the dog. After some time it was found that the salivary secretion began to take place at the ringing of the bell. Thus the reflex activity became conditioned in the form of *substitute stimulus* bringing the original response.

Conditioning of a reflex act may also take place in the form of a *substitute response*. The child is attracted by the flame of a burning lamp, but when once it experiences pain in touching the flame the original response is changed to its opposite, that of withdrawing itself at the sight of the flame.

Inhibition of a response is another way in which the reflex act is conditioned. In the above example of the dog, the secretion of the saliva was stopped when a number of times the bell was rung but it was no longer followed by giving food to the dog. Constant disappointments inhibit the original response.

Educational significance of the conditioning of reflexes—There is a dispute over the point whether the reflex behaviour can really be modified. But, if we

accept the position that reflexes are capable of modification, then this modification must be viewed as one of very great importance from the point of view of education. According to some psychologists our likes and dislikes are built through the conditioning of the reflexes. Let us take an example from Morgan and Gilliland *(An Introduction to Psychology)* to illustrate it.

"One day a mother was very much surprised to hear her little boy say that he did not like oranges and refused to eat one because, he said, it tasted like castor oil. His mother had administered a dose of castor oil in orange juice in order to kill the flavour of the medicine. The castor oil had modified his reaction to the orange juice (had conditioned it—to use the term we have learnt), so that now the taste of an orange juice produced disgust just as the castor oil had done in the first place."

Thus we see that through a process of conditioning of the reflexes a person's attitude towards certain objects may be changed. Objects of love may become objects of hate. A thing that formerly pleased the child may become a source of annoyance to him. Harmless things may become objects of fear through the same process.

INSTINCTS.

NATURE OF INSTINCTS—We have outlined above the nature of simple forms of human behaviour. An instinct is a more complex form of it. Like reflexes instincts also are innate. An instinct may be called

a racial habit that we inherit from the parents, [The instinctive reactions are not learned, yet they are done in a manner that shows the presence of intelligence in them The bird does not learn to build the nest from any one. Yet it builds its nest as skilfully as a man would build his house. An instinctive act is thus guided by intelligence, though there is absence of forethought and planning. Instincts manifest racial intelligence inherited by the individual.]

INSTINCTS DISTINGUISHED FROM REFLEXES—Reflex actions are very simple, instinctive acts, on the other hand, are complex The former require very few nervous coordinations; the latter require many coordinations. According to the Behaviourists there is no fundamental difference between reflexes and instincts; the latter are called chained reflexes. According to another School of Psychology, the Hormic School, there is a fundamental difference between the reflexes and the instincts. The instinctive acts involve the use of intelligence, whereas reflex actions do not involve its use.

We need not, however, go into this discussion. For our purpose it is sufficient to point out that instincts play a much more important part in the life of an organism than the reflexes do and the former are more modifiable than the latter.

RELATION OF INSTINCTS TO EMOTIONS—Instincts are very closely related to emotions. As a matter of fact there is no instinct which is not connected with a specific emotion. The definition of an instinct as given by McDougall itself makes it evident that an

instinct is always associated with an emotion. McDougall defines instinct as "an innate disposition which determines an organism to perceive or pay attention to any object of a certain class, and to experience in its presence a certain emotional excitement and an impulse to action, which finds expression in a specific mode of behaviour in relation to that object."

Thus there are three elements present in an instinct, on the cognitive side the perception of a certain situation or arousing in the mind of a peculiar train of ideas is necessary; on the affective side there is a characteristic feeling tone or emotion; lastly there is a tendency to act for which the organism has a particular mechanism

There are, however, certain modes of inherited behaviour with which we do not find associated some specific modes of feeling or emotion. Now one emotion is aroused and now another. Thus with imitation, sympathy, and play no specific emotions seem to be connected. Such inherited modes of behaviour are called by McDougall *innate tendencies*. The term has now been used universally by psychologists of practically all schools. We shall come to these later in a separate chapter.

PECULIARITIES OF MAN'S INSTINCTS—Just as other animals are born with instincts, man is also born with instincts. But there is a marked difference between the instincts of animals and those of a man. The instincts of other animals are well differentiated, it is not so in the case of a man. The child is not

born with a highly finished mental structure. Due to this fact the human babe is much more helpless at birth than the young ones of other animals. The chick begins to peck at small objects as soon as it comes out of the egg; similarly the duckling begins to swim whenever it is put on water. The human babe can do nothing of the sort. The child has to learn everything.

The second important characteristic of human instincts is that they are very plastic, Man's infinite capacity of learning depends on the plasticity of his instincts. This characteristic is closely related to the former characteristic The plasticity of the instincts is partly dependent on their undifferentiated nature. Had the inherited mechanism of the child been as complete as that of other animals, modification of that mechanism would have been very difficult and man would have been able to make little improvement in his life through learning. Thus the educability of the child is dependent on the *plasticity* and *undifferentiated* nature of his instincts.

PRINCIPAL INSTINCTS OF MAN—Men in common with other animals has thirteen instincts with an additional instinct of laughter. A specific emotion accompanies each instinct We give below the names of the instincts and the accompanying emotions.

NAMES OF INSTINCTS	EMOTION ACCOMPANYING THE INSTINCTIVE ACTIVITY
1. Instinct of escape or flight.	Fear, terror, fright, alarm,

2.	Instinct of combat (Pugnacity aggression).	Anger (rage, fury, annoyance).
3.	Repulsion (Repugnance).	Disgust.
4.	Parental instinct.	Tender emotion, love.
5.	Appeal.	Distress.
6.	Pairing (mating, reproductive, sexual).	Lust.
7.	Curiosity.	Curiosity, wonder.
8.	Submission (self-abasement.	Negative self-feeling.
9.	Assertion (self-display).	Elation, positive self-feeling.
10.	Social or gregarious instinct.	Feeling of loneliness.
11.	Food seeking instinct	Appetite or craving in a narrow sense.
12.	Acquisitive (hoarding instinct).	Feeling of ownership.
13.	Construction.	Feeling of creativeness
14.	Laughter.	Amusement.

The above instincts are sometimes put in three groups—the self-instincts, the sex instincts and the social instincts. Search for food, curiosity, pugnacity, flight, etc. come in the first group; pairing and parental in the second; and submission, assertion and laughter in the third.

All the instincts do not appear at once in the life of the child. Some instincts appear earlier and some

later—at least there is a period in the life of an individual when a particular instinct is most strong. Thus curiosity and constructiveness are strong in childhood, sex instinct becomes strong in adolescence. Instincts, such as pairing and parental that appear strong during adolescence and maturity, are called *delayed instincts* by William James.

It is the duty of the educator to see that the energy of a particular instinct is utilized in the education of the child just when the instinct is most strong. William James has pointed out that *Instincts die of disuse*. Whatever may be the truth in the assertion of James, at least one thing is clear. If a particular instinct is not utilised at a time when it is most strong, the instinct may not prove as useful in the development of the child as it would otherwise have done. The second point to be borne in mind by an educator is that nothing should be taught to the child too early. A child's capacity to understand certain facts is dependent on his general maturity including the maturity of his instincts. Hence we should wait for the period when a particular instinct gets strong in order to give education that is related to that instinct.

PRINCIPLES OF MODIFICATION OF INSTINCTS

Education aims at the modification of the instincts of the child. We have therefore to note the principles of their modification. The instincts may be modified according to the following principles.

HEDONIC SELECTION—In accordance with hedonic selection modes of behaviour that yield pleasure become fixed in the mind, whereas those that yield pain tend to disappear. When a teacher rebukes or beats a child for doing some mischief, he depends on the principle of hedonic selection. The burnt child dreads the fire. Here too hedonic selection works. Punishment inflicted by guardians on the child is burning created by an artificial fire. Acts whose consequences are bad for the life of the child should not be allowed repetition. The repetition can be prevented through punishment. Thus a harmful tendency is weakened or modified

INHIBITION—The process of inhibition consists in holding a tendency in check. If as tendency is held in check for a period of time, the tendency may disappear. Thus many evil tendencies may be inhibited by not allowing them a chance to express themselves. Thus if chidren are suitably engaged, their tendencies to quarrel, to complain, to spoil the furniture of the school will automatically be checked. It must, however, be remembered that a strong tendency cannot be altogether inhibited in this way. The energy behind the tendency must be utilised in some form of activity. When this is not done the reactions of inhibition may be very undesirable.

OPPOSITION—An evil tendency may be held in check by its being opposed by a tendency of a nature incompatible with it. Thus pugnacity is modified by evoking the spirit of feeling or sympathy. Envy

is modified by gregariousness. Sex is modified by self-display.

REDIRECTION—The modification of a tendency may take place by its being redirected to worthy ends. Thus curiosity may be directed to solving problems in Mathematics. Acquisitiveness of children may be directed to collecting stamps, pictures and works of art. Pugnacity may be directed to fighting for the weak against the strong.

SUBLIMATION—Sublimation of instincts is another way of modifying ihe instinctive urges. The process of sublimation consists in the transformation of energy behind an instinct. Thus work of art—poetry, painting and music, are sublimations of the sex instinct.

The sublimation of instincts is like redirection of instincts to worthy ends. As a matter of fact there are many psychologists who do not recognize sublimation as a separate method of modification of instincts. The psycho-analysts, however, say that sublimatian of instincts is fundamentally different from redirection of instincts. In the case of redirection, the instinctive urge does not change its nature, only the object towards which the urge is directed changes. When there is sublimation of an instict, the tendency appears in an entirely changed form. It becomes difficult to indentify the tendency by seeing its manifestations or the products of its sublimation.

UTILISING THE INSTINCTS FOR EDUCATION

We have shown above how instincts may be

quite early in life. The child wants to attract to himself the notice of others. Due to this he tries to do some thing very remarkable. He tries to excel orher children in studies or games. It is the duty of the educator to provide ample opportunity of self-display to every child. Even small achievements of children should be appreciated. We can make the child a very social personality by properly directing the instinct of self-display. On the other hand, when the instinct is ill-directed, it manifests itself in many forms of anti-social behaviour. Lying, bullying, spoiling the articles of the school are all reactions of the repressed instinct of self-display.

INSTINCT OF SUBMISSION—This instinct is the opposite of the instinct of self-assertion or self-display. The instinct prompts an individual to submit to one in authority or a superior person. This makes order in society possible. The teacher has to make use of this instinct in maintaining discipline in the class and in making the child do the given task.

The teacher should make the students feel that he is their true benefactor. He should be diligent and sympathetic to his pupils. A good knowledge of the subject and a careful preparation enhance the prestige of the teacher and thus evoke a spirit of submission among the pupils. Above all he should be reserve. Familiarity breeds contempt. If a teacher loses the respect of his pupils, he can do them no good.

INSTINCT OF COMBAT OR PUGNACITY—When a strong impulse of the child is thwarted, the instinct of

pugnacity is aroused. It often manifests itself in undesirable ways Hence parents and teachers always try to repress the instinct. But it is not desirable to do so. It weakens the personality of the child. With proper handing it can be made a very valuable agent for social good. The educator should redirect the impulse to desirable ends. When a child fights a bully in order to defend a weaker child, he is making a proper use of pugnacity The instinct may also be sublimated. The sublimation of this instinct takes place in the child's attempt to fight difficult situations in life. Thus the instinct is sublimated when the teacher makes the child attack difficult problems in Mathematics, or defeat his opponent in debates

SEX-INSTINCT—To direct properly the sex-instinct of the child is one of the most difficult tasks before the educator. The child feels a special consciousness of sex at the advent of puberty. At this age the child contracts many evil habits. The child is to be saved from them. This can be done by a proper education of the child with regard to sex matters. But too much talk on sex itself has undesirable consequences, All knowledge about sex should be given incidentally. It is not wise to arrange lectures on sex as such. They may excite an undesirable curiosity in the mind of the child about sex phenomena.

The best method, however, of keeping the child free from the ill effects of sex abuse, is to keep his mind engaged. Activities such as music, painting, and dramatic performances sublimate the sex impulse.

The adolescent child should be engaged in ample physical activities. The child whose time and energy are so utilised will not have leisure to contract evil habits or brood over undesirable thoughts.

EXERCISES.

1. What are the different types of human behaviour ? Explain each type with examples.
2. Distinguish between reflexes and instincts. How are reflexes conditioned ? What is the educational importance of the conditioning of reflexes ?
3. How are instincts modified ? What is the value of the modification of instincts to the life of the child ?
4. What is meant by sublimation of instincts ? Explain how the sex instinct may be sublimated.
5. What use can the teacher make of the instincts of the child in his education ? Show the educative value of the instincts of curiosity and construction in this connection.

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Chapter IV

INNATE TENDENCIES

We have pointed out in the previous chapter that with every instinct a specific emotion is connected. This is not so in the case of innate tendencies. Sometimes one emotion and sometimes another accompanies the expressions of the innate tendencies. From the point of view of education there are two important innate tendencies—imitation and play. We shall consider the nature of each of them in the present chapter and shall see how they can be utilised for the purpose of education. The first of these tendencies has three sub-divisions namely, imitation, suggestion and sympathy. All these are nothing but various forms of imitation. What is specially known as imitation is copying others in action. When one copies others in thought one is said to be under the influence of suggestion, whereas when one copies others in feelings, the phenomena is described as sympathy. Let us now consider each of these forms separately.

IMITATION

Imitation is one of the most important general tendencies from the point of view of education. Imitation is doing as others do. The old and the young all imitate. The younger the individual, the more does he imitate. Most of the time of the child is spent in

imitating others. Through imitation he learns speaking, walking, playing, reading and writing.

THE VALUE OF IMITATION IN LIFE—"Imitation and invention are the two legs", says William James, "on which humanity has proverbially walked." Invention is necessary to bring improvement in life, but if the tendency to imitate were not present in man, no one would benefit himself by the labours of others Among lower animals learning is directed mostly by *the trial and error* method: one individual does not gain much by the errors of others. But in human learning due to the impulse to imitate others man does not commit as many errors as other animals do. Imitation is a great conservative force in life. The habits and customs of society that embody the experienee of the race are preserved due to imitation. It is due to imitation that there is coherence in society; the greater the tendency to imitate others in a social group, the better would be its solidarity. Between originality and imitation there is no real opposition. In the beginning imitation is unconscious, later on it becomes deliberate and this paves the way to originality.

Nature impels the child to imitate others. Thus its experience widens and its intellect grows. The experience of the child is limited and if it had not a strong tendency to imitate others it would perish. It would not learn to walk, speak or be able to do things required for living. The child imitates the elders in its plays most. Thus it prepares itself for the battle of life.

ITS UTILITY FOR EDUCATION—The child's tendency to imitate is to be utilised for his education. Imitation may be spontaneous or deliberate. Spontaneous imitation may be utilised in forming good habits in the child. Children can easily learn to keep their bodies clean, to dress themselves properly, to be punctual in their work, to keep every thing tidy through spontaneouly imitating others. Similarly the child picks up much of language, manners of speaking and behaving with others through spontaneous imitation. The educator has to provide suitable environment to the child so that he might easily develop valuable mental and moral qualities.

The ability to imitate others deliberately comes with the growth of thought Much of school work requires this kind of imitation. Reading, writing, and solving problems in arithmetic comes through deliberately imitating the teacher or a superior child. The teacher should present only beautiful writing on the black board, for it is what the students copy. His pronunciation of words should be correct and his general behaviour should be worthy of imitation.

The teacher can make use of the more intelligent boys in improving the weaker ones through evoking the spirit of imitation in the latter. Model essays should be read out in the class. The best boys may give the model reading. It should always be remembered that the best teacher of the child is not an adult but another child of the same age. Hence a child who learns in a

good school picks up hundreds of valuable habits through contact with other children and imitating them.

EMULATION

The tendency to emulate others springs from imitation, but it includes instincts of self-display and pugnacity. It is a very important tendency from the point of view of progress in life. According to William James "Nine-tenths of the work of the world is done by it." This may be an exaggeration but it cannot be denied that we are most impelled to action when we feel a desire not to be beaten by others.

The tendency can be utilised for the education of the child. When in games the spirit of competition is introduced, play becomes very interesting. Its efficiency is increased. Similarly the efficiency of work is increased when the spirit of emulation is introduced. But too much of competition between different boys leads to undesirable consequences. When competition is keen, emulation degenerates into rivalry and hatred. It is better to promote *group competition* in place of individual competition. This brings solidarity between different groups and promotes a spirit of self-sacrifice and discipline among the boys. *Self-emulation* likewise is better than emulation of others. A student should be taught to compare his present self with his past self. Let him be critical of his own conduct and try to see how much progress he is making from day to day. He will thus try to be better than what he has been before.

SUGGESTION

Suggestion is defined by McDougall as "a process of communication, resulting in acceptance with conviction of the communicated proposition in the absence of logically adequate grounds for acceptance" It is imitation of one person by another in thought. In an abnormal state of mind such as hypnosis one can easily notice the phenomena. Here the transferer can make the imitator believe or do whatever he likes.

The suggestibility of a person depends on his age, mental constitution and the conditions under which suggestion is given. Children are more suggestible than adults; persons whose instinct of subjection is strong are more suggestible than ordinary persons. In a group a man is more suggestible than when he is alone. Diseases and misfortunes make a man's mind a prey to unhealthy suggestions.

The strength of suggestion depends on the source from which the suggestion comes. Suggestion coming from a man of strong will is stronger than the one originating from a man of weak will. Similarly the number of persons believing in an idea also determines the power of suggestion of that idea. The former kind of suggestion is called *Prestige suggestion,* whereas the latter kind is known as *mass suggestion.* Prestige suggestion is effective when children have respect for the person from whom the suggestion is coming. When the teacher is loved and respected, all that he says is accepted by the pupils, if on the other hand, the

boys do not feel the superiority of the teacher, the tendency of *contra-suggestion* is aroused. Dumville says, "Unless a man has great personal influence over the boys, it is often dangerous for him to preach much". Preaching is disliked by every one particularly by older children. Hence so far as possible a teacher should refrain from preaching any thing directly to the boys When a subject becomes conscious that he is being "got at", the spirit of contra-suggestion is at once aroused and then no good can be done to him.

The teacher has to make a very discreet use of the power of suggestion It should be used only for the good of the boys and should not be used too often. The teacher should not put questions to the students suggesting either right or wrong answers. In the former case their intellectual activity is not aroused, and in the latter they are unnecessarily confounded. This brings them no good. One of the aims of education is to develop the thinking power of the pupils Keeping this in view, a teacher should not put elliptical questions or questions requiring answers in yes or no. He should not put such questions—"Was the policy of Aurangzeb towards the Hindus unwise ?" If such questions are put at all, they should be followed by supplementary questions, requiring a detailed knowledge of the subject.

Constant use of suggestion is bad. We have not to increase the suggestibility of students but to develop their power of critical thought. As Dumville points out, "In science, history, geography, arithmetic,

and even to a large extent in literature, the teacher's chief aim should be to induce the children to investigate and to come to conclusion for themselves. They should not be led to adopt an attitude of passive acceptance of all that their teacher tells them."*

SYMPATHY

Sympathy is imitation of others in feeling or feeling as others feel. We find the phenomena of primitive sympathy in the conduct of animals as well as of men. If in a herd of cattle one of the members shows fear and rushes off in flight, the others follow suit Sympathy works among children in the same way When a large majority of the children of the class behave in a particular way, the remainder begin to behave in the same way automatically. This is known as "sympathy of numbers." A teacher must keep the rank and the file with him. He should be fair and sympathetic to his pupils This will keep the majority with him Then he should search out those who are rebellious. He should see that no one sympathises with them. Thus left to themselves they should be brought round and behave as others do

The teacher should make use of sympathy in improving the tone of the class If the tone of the class is good, no need of punishment will arise The teacher should always keep the *Leaders* of the class with him. The leaders are usually difficult to be

*Fundamentals of Psychology P. 27.

discovered. They are not always the most intelligent or gifted ones among the boys. They also are not even conscious of their own position. The teacher should win them over to his side without making them conscious of the importance of their position. Once a rebellious student becomes conscious that he is being feared by the teacher or that he is an important person, the discipline of the class vanishes.

PLAY

CHARACTERISTICS OF PLAY—Play is defined by William Stern as 'voluntary self-contained activity'. It is an expression of the creative impulse of the child. There is no presence of compulsion in play. The only compulsion that the child feels in play is the compulsion of his own nature. Just as the poet feels an urge to create poetry, so too the child feels an urge to play. The play activities of the child yield him joy. Thus they are pursued for their own sake and not for any ulterior end. We can distinguish work from play by just this last criterion. Play activities are an end in themselves; this is not true of work. But when work is looked upon as its own reward it cannot be distinguished from play. As a matter of fact, philosophers like F. H. Bradley think that no ultimate antithesis can be maintained between work and play. The highest form of work is play.

From the above description of play it is clear that play is characterised by three marks—*freedom, spontaneity* and *joy*. Any activity which has these marks is play.

VALUE OF PLAY IN LIFE—Play is Nature's device to prepare the young one of an animal for the battle

of life. Nature goads the young ones of all animals to play. If a kitten gets a ball before it, it begins to roll it hither and thither, takes it in its mouth and then lets it go. In this way it prepares itself to catch the mice. Similarly puppies carry on a mock fight. They thus prepare themselves to fight a stranger. "Play", says William Stern, "is indeed to life as manœvours to warfare". Hence the play time of an animal is a time of preparation. The higher a species is in the scale of evolution, the greater is the period of play required for the young ones of that species. Nature, in fact, keeps an animal young so that it may play and thus prepare itself for the responsibilities of life. Karl Groos is right when he says, "It is not so true that animals play while they are young as that they are young so long as it is necessary for them to play."

Herbert Spencer regarded the play activities of the child as an *expression of his superfluous energy.* Play is like a safety valve that lets off the energy in the organism which is not required for the needs of life. This superfluous energy might have created some trouble, if it would not have been spent up in this way.

This view, however, is no longer regarded as sound. On this view the play activities are a mere waste of energy. But this is not actually the case. They are really highly beneficial to the animal. They provide exercise to the body and the mind of the individual. Through them the child gains control of his muscles and coordination of movements of various limbs.

Stanley Hall regards play as a kind of *recapitulation of the previous stages of evolution.* Thus the child

plays, at hide and seek since his ancestors actually had to resort to those activities for saving their lives from the attacks of other animals and hostile groups. This theory, however, does not command universal acceptance. Whatever may be the truth in the theory, from an educational point of view, it is not so important as the view expressed by Karl Groos, namely, that *the child in its play activities anticipates the serious activities* of later life.

There is an element of make-believe in play. This accounts for *games of personation.* Through these games the child trains its imagination for the business of life. Indulging in make-believe, though not good for the adult, is good for the child In the case of the former it shows a shrinkage of personality, in the case of the latter it shows its expansion.

EDUCATION THROUGH PLAY—In modern times the educationists are emphasising the need of giving scope to the full expression of the individuality of the child. They want to replace the old methods of school instruction, in which the child is made a passive listener to the teacher's erudition, by the new methods of self-education and creative activity. The old conception of discipline is changed. According to the new conception of discipline, the best school is not one in which there is least noise, but rather it is one in which there is the greatest activity. It is urged that the teacher should no longer play the part of a dictator but he should rather be a director of the energies of the child. All this means that the atmosphere of the

school should be surcharged with freedom and joy. There should be education through play.

The curriculum as it obtains in the present day schools does not pay heed to the demands of the child nature. The child is taken to be a miniature adult, and we try to teach him every thing that we think to be valuable from our point of view. This attitude has to be changed. In our schools there should be more of such activities as would engage the attention of the child spontaneously. Music, drawing, handwork, gardening, dramatic performances, debates, scouting etc. should find a proper place in the curriculum.

The methods of instruction also require to undergo change. They should be flexible enough to meet the needs of different individuals. Knowledge should be so communicated as to be interesting to them. Greater responsibility should be placed on the pupils themselves for their conduct and progress. Group work should be encouraged. There should be more of activity method in the school work. The whole work should be done in a spirit of freedom and joy.

A number of educational systems have come into vogue these days that aim to reform the old methods of education. They all make use of the principles of paly in the education of the child. Froebel's Kindergarten, Montessori Method, Dalton Laboratory Plan, Heuristic method are very good examples of "the play way in education." Every one of them tries to make the child active, diminish the external checks and create an atmosphere of freedom and joy.

Exercises.

1. "Imitation and invention are the two legs on which humanity has proverbially walked"—Explain the statement and bring out the importance of imitation in the life of the child.
2. What use can a teacher make of emulation in class work ? How can we avoid the evil consequences of emulation ?
3. What is prestige suggestion ? How can it be utilized for the benefit of the child ?
4. Explain some of the abuses of suggestion. When is suggestion really useful in the child's education ?
5. What is meant by "sympathy of numbers" ? How can it be utilized for the education of the child ?
6. "It is not so true that animals play while they are young as that they are young so long as it is necessary for them to play".—Expound and discuss the statement.
7. How is play distinguished from work ? Explain the educational value of play.
8. What is *play-way in education* ? Give the characteristics of some of the methods that advocate the doctrine of education through play.

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2. Stern—*Psychology of Early Childhood.*
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4. Nunn—*Education: Its Data and First Principles.*

CHAPTER V

LEARNING

NATURE OF LEARNING

Learning is the process by which the original innate behaviour of the organism is modified through contact with the environment. It is benefiting oneself by past experiences. It enables an individual to live a more successful life, that is, to derive a greater amount of pleasure from its life-activities. There is some amount of learning even in the lowest organism. Insects, animals and men all benefit themselves by past experiences. Animals learn more than insects and man learns most.

To understand the nature of the process of learning let us take a few examples.

"Place a white rat before two little doors, both just alike except that one has on it a yellow circle. The rat begins to explore. If he enters the door with the yellow sign, he finds himself in a passage which leads to a box of food, if he enters the other door he gets into a blind alley, which he explores, and then, coming out, continues his explorations till he reaches the food box and is rewarded. After this first trial is completed, place him back at the starting point, and he is very apt to go straight to the door that previously led to the food, for he learns simple locations very quickly. But meanwhile the experimenter may have shifted the yellow sign to the other door, connected

the passage behind the marked door with the food box, and closed off the other passage; for the yellow disc in this experiment always marks the way to the food, and the other door always leads to a blind alley. The sign is shifted irregularly from one door to the other. Whenever the rat finds himself in a blind alley, he comes out and enters the other door, so finally getting his reward on every trial. But for a long time he seems incapable of responding to the yellow signal. However, the experimenter is patient; he gives the rat twenty trials a day, keeping an account of the number of correct responses, and find the number increasing little by little, till after some thirty days every response is correct and unhesitating. The rat has learned the trick."*

Learning takes place more quickly if for every mistake the rat receives punishment. This is done by placing electrified wires in the blind alley so that the rat receives a shock whenever the mistake is committed.

In another experiment the rat is placed in a maze with a food box. There is only one way to it In the beginning the rat covers every inch of the ground in the maze. He goes to a blind alley. But in course of time all the wrong moves are eliminated and the rat learns to go to the food box directly.

METHODS OF LEARNING

The process of learning takes place in the following different ways. Sometimes two or more of them are combined.

* Woodworth. *Psychology*, P. 304.

(i) RANDOM RESPONSES.—When a living organism has to face a new situation, in the beginning it makes random responses to get out of the situation. If these are not made no learning will take place.

(ii) ELIMINATION OF A RESPONSE.—Out of the random responses those that do not lead to the desired end are eliminated. A stimulus arouses a response. There are certain types of responses that an animal will make at the presentation of certain stimuli. But when they do not bring satisfaction or bring positive pain, these responses are eliminated. The rat in the maze went to the blind alley in the beginning, but later on it did not turn that way. Constant failures inhibit a response.

(iii) SUBSTITUTE STIMULUS.—This occurs when instead of the original stimulus some other stimulus brings a particular response. A dog gets saliva into its mouth at the sight of the food but not at the hearing of a bell. But the bell may bring saliva by being associated with the food. How it is done is shown on page 35 while describing conditioned reflexes.*

All language learning is a case of substitute stimulus. Words evoke the same response from us as original objects.

(iv) SUBSTITUTE RESPONSE.—This we find in the case of the burnt child who dreads fire. The original response to the fire stimulus was to approach it, but experience taught that fire is painful. Hence

* A young child showed no sign of fear when it saw a rabit, rather it took its hand to it. But a loud rapping noise was

instead of going towards fire, he withdraws himself or runs away from fire.

Let a hungry cat be placed in a cage. It tries to get out by crawling between bars, but it fails. By chance it turns a button attached to the door and comes out. When this is done again and again the cat learns the trick to go out. The original native response to crawl is given up and the new response to turn the button takes its place.

(v) COMBINATION OF RESPONSES —Originally the child is capable of making simple responses. Unless combination of these responses takes place the complex acts cannot be done. Our life is full of such complex acts. Even such seemingly simple acts as walking and taking food are combinations of many simple responses. Much more it is so in the case of cycling, typing and playing the piano where evidently many responses have to be combined to produce one effect.

TYPES OF LEARNING

Learning has sometimes been divided into the following two main types:—

(i) Learning through trial and error.

(ii) Learning through observation or insight and understanding.

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produced behind the child just then. It quickly withdrew its hand. This was repeated several times. The child later on shrank from the rabit out of fear The child really feared the noise; now it began to fear the rabit which was not an object of fear before

The forms of learning described above are of the trial and error type. This is common among lower animals. Among higher animals and man it is the second type of learning that predominates.

The simplest form of learning through observation is imitative learning. A monkey learns much through imitation. Put a banana in a tube and leave it to a monkey. The monkey tries several methods of taking it out. After much trial and error it takes it out by thrusting a stick in the tube. Suppose another monkey is observing it. When this monkey's turn comes to get the banana from the tube, it does not resort to the trial and error process. It directly pushes the banana out with the help of the stick. This is learning through imitation. It is benefiting oneself by the experiences of others. Much of children's leaning is of this nature.

A still higher form of learning through observation or insight is to be seen in rational beings, Buler holds that this type of learning is fundamentally different from the trial and error types. This requires a capacity of analysis and synthesis of experience which is possible only to man. It is learning with the help of meaning. All higher forms of learning involve it. This saves waste of energy made in the trial and error method. The superiority of man over other animals lies in his learning through insight and understanding. Again, the more intelligent a man is, the greater isIthe use of insight.

Supposing there is a poem to be committed to memory. The ordinary method is that of rote learning.

But the better method is to perceive the meaning of words and their mutual relationship, to observe the rhythm involved and discover the meaning of the whole poem. In this way learning will be more effective than otherwise. If one had always to learn every thing by the trial and error method one would achieve little in life and would not be at a higher level of existence than animals. While testing the intelligence of children through puzzle boxes the experimenter sees whether the subject proceeds by the trial and error method or by the method of insight.

There are many thinkers, however, who hold that there is no fundamental opposition between learning through trial and error and learning through insight. The latter is nothing but the trial and error process carried on at the ideational level. Animals are incapable of thinking of objects in their absence; man can do so. He thinks with the help of images and concepts. Hence he has not to make actual trials and errors but makes them in his mind. All reasoning is of this nature. It is making trials and errors at the ideational level. Imitative learning also involves trial and error process. But it is done at others' cost.

LAWS OF LEARNING

Thorndike has given the following three laws of learning—

(i) *Law of effect* or the law of satisfaction and dissatisfaction. A tendency or a learned reaction is made

strong if it yields pleasure; it is weakened if it brings pain. This law explains why out of the innumerable original responses some are retained while others are eliminated. The rat learnt because of it to go to the place which brought him food and avoid the one which gave electric shock. The child, likewise, does the thing which brings him the praise of the teacher and avoids to do the one which brings him punishment.

(ii) *Law of Exercise* or the law of use and disuse—A thing is learnt well by doing it over and over again. When repetition does not take place for a long time, what is learnt tends to be lost, The cat learns to use the button by doing the thing again and again, so does a boy learn cycling, typing or solving problems in mathematics. When one gives up the practice, forgetting begins.

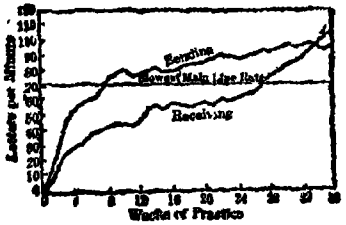
Here it must be noted that merely this law cannot account for learning. More repetition of a lesson does not fix it in the mind. The lesson must be interesting, that is, the process of learning should be accompanied by pleasure. Then only it will be learnt easily.

(iii) *Law of Readiness*—This law says that when any reaction is learnt, it is satisfying to act according to it; when it is not learnt it is painful to act according to it. In other words, we are prone to do what we are used to. If a child can recite a poem successfully, for him to do so is satisfying; whereas when he is not ready, it is annoying. The foot-ball player, the chess-player, when at play, have their joys due to this fact of readiness.

PLATEAUS OF LEARNING

The above laws explain the Phenomena known as plateaus of learning. When we are learning a new skill, progress for sometime goes on rapidly, but a time comes when there is no progress. But continued efforts result in progress. When these facts are represented on a graph paper, the period of stagnation shows a plateau. Below is given a graph which shows the record of progress in receiving and sending message in telegraphy. It shows that for some weeks there was rapid progress, then a plateau arose, then there was again progress.

PLATEAU OF LEARNING.



Weeks of Practice.

Plateaus arise due to loss of interest in work. They sometimes represent a period of consolidation. When the former is the case, they can be broken by introducing new interest or motivisation in the work. When

the latter is the case plateaus do not represent stagnation and they break naturally.

EFFICIENCY IN LEARNING

Efficiency in learning depends on the following conditions—

INTENTION TO LEARN.—This is the most important condition. We learn what we desire to learn. Interest, in other words, is at the root of all learning. It is what makes the attention steady. If a child does not want to learn a lesson, it is impossible for a teacher to make him learn. A good method of teaching is nothing but one which arouses in the child's mind a desire to learn.

DOING HELPS LEARNING.—The more the child exerts himself the better does he learn. The teacher should, so far as possible, combine head-work with hand-work. Manual training and clay-modeling are introduced in schools not simply to make children experts as carpenters and potters or to train their hands but they are methods of teaching. Geography can be better learnt by drawing maps and charts, making models than by cramming the books.

VIGOROUS APPLICATION.—All work should be done vigorously. Students should not read all the day, but they should be all attention while preparing their lessons. The following poem gives a very salutary advice—

Work while you work,
Play while you play;

That is the way
To be happy and gay.
All that you do
Do with your might;
Things done by halves
Are never done right.

GOOD WORKING CONDITIONS.—Effective learning is possible only under good working conditions. Children cannot work when it is very hot or very cold, or when noise is coming from the street. Ill-lighted and ill-ventilated rooms are not proper places for learners to work. They must not be hungry or over fed.

LENGTH OF THE WORKING PERIOD.—The working period should be neither too short nor too long. Some time is required for one to become heated to work. After some hours of work one feels fatigue. Then attention flags. Children of different ages should have different periods of work. Young children become tired sooner than older ones.

FATIGUE IN LEARNING

Fatigue in learning is produced when one does continued hard work. It is caused by the *exhaustion of the energy producing compounds* and *the presence of toxins* or waste products in the blood. The compounds supply energy to the nervous system. In work they are exhausted, then naturally the nerve or the brain does not work efficiently or fatigue comes.

The toxins are produced by the burning of nerve cells during work. They are poisonous. So long as

they are present, there is fatigue. Freshness can come only by their removal. They can be removed by rapid circulation of blood. If children are let off for a while after some brain work they gain freshness, as by their running and jumping they take in more oxygen and rapid circulation of blood takes place which removes the toxins from the blood.

Fatigue can be prevented or removed by change of work, taking nourishment and sleep. *Change of work* gives rest to certain centres while others are at work. The toxins of the former centres are removed from work. Hence it is in a sense right to say that 'change of work is rest'. But the change should be as complete as possible If the brain has been working for some time let the hand work now. To prevent fatigue hand work should alternate with head work.

One cannot, however, go on working the whole day without feeling tired. New energy ought to come. This one gets by *taking nourishment* Foods that contain sugar are very helpful in removing fatigue. The value of milk in this connection cannot be overestimated. In this way one can go on working for the whole day.

Sleep is Nature's sovereign remedy against fatigue. During sleep the toxins are removed and the tissues that have been destroyed by work are repaired. Thus real freshness comes only after sleep.

Sometimes fatigue is felt due to loss of interest in the work. The teacher should recognise this kind of fatigue. Children sometimes complain of fatigue

when they are not really tired. Such fatigue has only one remedy. It is by introducing interest in the work. It is seen that when children are interested in a lesson they do not feel tired even after hours of work.

The nature of the subject sometimes determines fatigue. Some subjects are more tiring than others. Generally Mathematics and Classics fatigue more than Geography, Elementary Science and Drawing. While preparing the time-table of the school work one should keep this fact in mind. Two difficult subjects should not be put one after the other and the easier subjects should be placed towards the end. The most difficult subject should be taught in the second period.

EXERCISES

1. Explain the difference in the learning of animals and of man. In what respects are they alike ?
2. Explain some of the methods of learning. How does a child learn to say a new word ?
3. What is learning through insight and understanding? Is it fundamentally different from learning through trial and error ?
4. Explain with examples the Law of Exercise. When is the repetition of a task most effective in learning it ?
5. Doing helps learning—how ? What use can you make of this principle in the education of the child ?
6. A child says, 'I am not tired but I am tired of this." Explain the psychology of the statement. What remedy do you suggest to deal with such a situation ?
7. Give some of the remedies against fatigue. When are they effective ?

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CHAPTER VI

HABIT

NATURE OF HABIT

We have divided human behaviour into two main types—variable and non-variable. Habit is a variable form of human behaviour. Habits are acquired ways of reaction. But they are like reflexes and instincts in being automatic. They are sometimes called "Secondary automatic reactions." The word "secondary" signifies that they are acquired by the individual himself and "automatic" that they are mechanical just as instincts and reflexes are.

A habit may be contrasted with the response of a person to a new situation. The new response is indefinite and changeable, habit is definite and fixed. The new response is slow and uncertain, habit is quick and accurate. The new response is attended by effort and strained attention, habit is easy and half-conscious. A new response may be unpleasant but habitual reactions are pleasant

Every living organism is capable of acquiring new adaptation. When any act is repeated again and again, it becomes a habit. Learning is the process of acquiring new habits. "We all marvel at the tricks of the pet monkey, the dog or the elephant. We know the animal was not born with the ability to perform these tricks. The first performance is often a very

difficult thing but after repeated practice the animal comes to be very proficient in his acts. After he has once learned the trick he is and always will be a different animal from what he was before he learned it. He may, through a lack of practice, become less able to perform the trick but the effect on the organism is to a certain degree permanent one."*

Thus we see animals and even insects form habits But the number of habits that man forms is much too large. Hence it is often said that whereas instincts and reflexes predominate in the life of lower animals, habits and voluntary reactions predominate in the life of man.

BASIS OF HABITS

PHYSIOLOGICAL BASIS.—The basis of habit lies according to some psychologists in the nature of the nervous system. The formation of habit requires two opposite qualities in the nature of the object—*modifiability and retentivity* Non-living objects do not have both these qualities in equal measure at the same time Steel has great retentivity but little modifiability; putty has great modifiability but little retentivity. Steel retains changes made on it but it resists changes, putty does not resist changes but does not retain them for long. Now the human nervous system has both these qualities in an ideal condition. An impression may be easily produced on it and retained for ever.

The human nervous system is made of billions

*Morgan and Gilliland; *An Introduction to Psychology* P. 67.

of cells. These are called neurones. Between some neurones there are strong inborn connections. These form the basis of reflex actions. Between others there are only loose connections, which are modifiable. Such connections are the basis of habits. When a stimulus comes from outside, it takes some path to reach the brain. It may take a preformed path or may make a new path. There are usually several alternative paths for the nervous current to travel inward. The path that it chooses becomes later on fixed. *Synapses* are formed between the neurones that carry the message. The synapses are junctions between the nerve cells. Once they are formed they resist the formation of other synapses. Thus habitual reactions tend to persist and it is difficult to break an old habit.

Hence, the formation of habits depends on two facts. The first is the indeterminate nature of connections between neurones; this accounts for the modifiability of the nevous system. The second is the formation of synapses among neurones; this accounts for retentivity.

PSYCHOLOGICAL BASIS—The psychological basis of habit formation is the *law of hedonic selection* or the pleasure and pain principle. Pleasure sustains, prolongs and confirms the mode of striving which brings pleasure. Pain checks the activity that brings pain. A mode of reaction tends to reoccur only when it satisfies a certain urge. In the absence of the urge there would be no reoccurrence of the activity, as there is no satisfaction to be gained. Hence no habit

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PSYCHOLOGICAL BASIS—The psychological basis of habit formation is the *law of hedonic selection* or the pleasure and pain principle. Pleasure sustains, prolongs and confirms the mode of striving which brings pleasure. Pain checks the activity that brings pain. A mode of reaction tends to reoccur only when it satisfies a certain urge. In the absence of the urge there would be no reoccurrence of the activity, as there is no satisfaction to be gained. Hence no habit

will be formed. Thus the basis of habit is in urge which prompts the activity. In other words, just as motives underlie voluntary actions, so impulses underlie habits; when the former are weakened, the latter are also weakened and finally disappear.

Let us take an illustration. Students during the time of examination work hard. They get up early in the morning and apply themselves to their studies. But it is seen that after examination few students touch their books or rise early. The repeated activity did not create a habit of early rising in them. When the motive for early rising disappeared, the activity ceased. Thus in the strength of the urge lies the strength of the habit. Habit, as McDougall points out, is not in itself a force as an instinct is, but rather a mechanism created by a force to work itself out.

VALUE OF HABIT.

Habit is a great conservative force in the life of man. It saves much of the energy that is spent in making random movements required to do an act for the first time. It *simplifies movements, makes them accurate*, and *diminishes fatigue*. Besides it *diminishes the amount of* attention required to do an act.

Watch a child learning to write. When he makes his first letter all his attention is devoted to it. He makes many false moves and in the end with difficulty scribbles out the form of the letter. The resulting form is so inaccurate that it can hardly be recognised. Now this very child in a few months does the whole

thing with ease and accuracy without making any mistakes. Every thing seems to be done automatically. This is the result of habit. The same is seen in the case of a tennis player. The novice in playing tennis seems to be all activity and all attention. But much of this activity and attention go to waste. The movements that he makes are not of the right kind. He gets easily tired. The fingers of a trained player at piano work so accurately and automatically that they excite wonder in us. The trained typist likewise does not attend to the letters but only to the matter he is typing We can do many things at the same time simply because equal attention is not required to be paid to all the acts. Some of the acts become habitual and are done automatically. Only a few are directly attended.

Habitual actions become liked by those who do not like them in the beginning. Their unpleasantness disappears. Imagine the lot of the chimney-sweeper and the cleaner of gutters. How hard and repulsive are their jobs. Yet if the jobs were so hard as we imagine them to be, it would be impossible for them to live However repulsive a job may be in the beginning, habit makes it bearable and even liked by him to whose lot it falls. The pain attending the job disappears and what was very difficult becomes easy. When a man enters the mine the first day, he comes back with an unbearable pain in the back But the miner no more feels the pain as it was felt by him the first day of his work. All this is due to habit. People who

spend their whole life in prisons begin to have a liking for their prison life. There are cases on record of prisoners who applied for readmission to prisons when suddenly they were released from them after serving a long term of imprisonment.

IMPORTANCE OF HABIT TO EDUCATION.

The progress of an individual in life depends on the formation of good habits. The child with good habits has an enormous fund of energy at his command which he can utilize for the purpose of improving himself. A man should have fixed hours of rising and going to bed, of meals, of work, recreation, rest and social intercourse. It is only in this way that he can discharge all the heavy responsibilities of his life "There is no more miserable human being "says William James, "than one in whom nothing is habitual but indecision, and for whom the lighting of every cigar, the drinking of every cup, the time of rising and going to bed every day, and the beginning of every bit of work are subjects of expressed volitional deliberation."

The nervous system of the child should be made his ally rather than his enemy. The child's mind is very plastic. His mind is impressionable to every thing that occurs in the environment. Hence great care has to be taken in directing his inclination and enabling him to react to situations around him in the proper way. The happiness and misery of life depends on what habits we have formed in childhood. For these become the basis of other habits that one forms

in later life. Hence a man is happy if the habits he formed in early life are good; he is unhappy if they are bad. Education in a sense is nothing but forming right habits of thought and behaviour in the child. Character is a bundle of habits. One of the aims of education, the most important aim, is to build character. Now this can be built up only by the formation of right habits.

All learning is habit formation. The child has to form habits of speaking, writing, reading, making calculations quickly etc. All this depends on practice, in other words, on the formation of habits. From this it is evident that Rousseau gave a false pedagogic doctrine when he said that the only habit which Emile shall form is to form no habit. If a child forms no habit he learns nothing and education has no meaning. The child cannot help forming habits. Habits are created due to the fact that the child has to do so many actions over and over again. What we should see is that only good habits are implanted and bad habits do not take root.

Habits, it is often said, are good as servants but bad as masters. This is a very salutary advice to all those who aim at forming habits either in their own lives or in the lives of others Habits that serve us are formed by ourselves. Their formation requires an effort of the will. They do not come of their own accord. Habits that come of their own accord or are easily contracted (*e.g.* smoking, lying, gambling etc.) are usually bad habits. Such habits become our masters.

We cannot get rid of them easily. With reference to such habits it is right to say that the only habit that the child will form is to form no habit. The formation of habits of right kind involves a training of the will. The larger the number of such habits a man has, the stronger is his will, and in the strength of will lies the strength of character. Such habits can be dismissed at will; for it is the will that forms them. The child should have as many of such habits as it is possible. It takes a long time to cultivate such habits, as neatness, punctuality, perseverance and truthfulness. But it does not take time to lose them. The formation of good habits is like going up a hill, losing them is going down. Certainly the latter task is easier than the former one. Hence one need not be afraid of his good habits, nor can he have too many of them.

LAWS OF HABIT FORMATION

William James has stated four laws of habit formation. They are as follows:—

(1) *Launch yourself with as decided an initiation as possible.* The greater the strength of resolution with which we begin a work, the longer is it likely to keep us engaged. Well begun is half done. When the first act is done with a strong resolution, a strong tendency to do it over again is created in the mind. It is done with ease a second time. One should take a public pledge at times. This enables one to stick to one's resolution with tenacity.

(2) *Never suffer an exception to occur till the new*

habit is securely rooted in life. Failure at the outset damps energy. Each lapse is like letting go a ball of string which one is carefully winding up. A single slip undoes more than a great many turns will wind again. Suppose, a habitual late riser makes up a resolution to rise early. He rises early for four or five days. But after a week, one day he becomes indulgent and rises late. This one slip undoes practically all the virtue he gained by making effort for seven days.

(3) *Seize every first possible opportunity to act on every resolution* you make and an every emotional prompting you may experience in the direction of the habit you aspire to gain. A man may possess a vast number of good maxims, but if he does not act up to them, their possession is worse than useless. It is by action alone that habits are formed and character made great. The oftener we do a right act, the deeper becomes the tendency ingrained in our minds to repeat it. On the other hand, every time a good resolve, a fine glow of feeling is lost without bearing fruit, it works on the side of pulling one down. Persons who read novels too much and visit cinema shows or theatres develop a type of character full of sentiments, but possessing little capacity for doing real social good. They become the type of the Russian lady who wept over fictitious personages in the play while her coachman outside froze to death.

(4) *Keep the faculty of effort alive in you by a little gratuitous exercise every day.* Just as by disuse living beings lose the power of exercising their limbs, so too

habits are lost by disuse. There is no holiday for virtue. Where virtues are not exercised, they leave us for good.

HOW TO FORM HABITS IN A CHILD

The four laws stated above are to be carefully applied while forming habits in a child. The child should be led to make a strong resolution to form the new habit. But in order that this may be possible, the teacher should evoke some strong native urge of the child. As we have pointed before no habit can be formed unless the individual strongly desires to form it, that is unless it satisfies some one of his urges The teacher should, therefore, tell the child the value of a good habit, rather make the child be convinced of it. The child should clearly see that he would be happier by having the habit. Our actions follow our interests. The child should be made interested in what we want him to do. Then the child should be made to do the work. Work teaches its own value. As the work is successfully done it brings satisfaction. This satisfaction lives in memory and becomes the cause of the repetition of the action. Thus habits are generated. In the beginning the action is difficult but with increase in practice it becomes easy. A day comes when it becomes almost automatic.

Suppose we want to inculcate in the child the habit of physical exercise. This will require lecturing on it, taking the student to places where exercise is done daily, taking help of pictures to impress upon the mind of the child the value of regular exercise and

good health. Then he should be made to practise also. There should be no neglect made in the early stages. The teacher should see that even when the habit has become fixed, the child does not avoid doing exercise.

ELIMINATAON OF BAD HABITS

Closely connected with the problem of forming good habits is the problem of eliminating bad ones. *Disuse* is by far the most imporat method of eliminating a bad habit. Suppose a child has the habit of telling lies. The teacher should see that very few occasions arise when the child may tell lies. The habit of smoking likewise dies of disuse.

Another way of eliminating a bad habit is by *opposing it with a habit of a contrary nature.* A student has the habit of quarrelling with his few fellows. Suppose he is made the captain or a member of a team of players. Now the team spirit acquires inhibition of the quarrelling habit, hence as the team spirit grows in him, the quarrelling habit will be inhibited.

The law of *hedonic selection* has also to be made use of in the elimination of a bad habit. A certain amount of satisfaction is gained by doing a habitual act. A bad habit usually satisfies an instinctive tendency. Now if dissatisfaction follows the doing of a habitual act, it would not be repeated and thus the habit will die. A child may have the habit of stealing articles belonging to others. This satisfies his hoarding instinct. Infliction of punishment will eliminate the

habit; for now instead of satisfaction, dissatisfaction follows the doing of the habitual act.

There are some bad habits of a pathalogical nature. They are due to the formation of complexes in the child's mind Such habits can be eliminated by psycho-analysing the child. For this child clinics are needed. Kleptomania, pathalogical lying are cured in this way.

Exercises

1. Distinguish between habits and instincts. What is meant by saying "habits are secondary automatic acts." ?

2. What is the physiological basis of habitual behaviour? Can you explain the formation of habits in any other way ?

3. Habit diminishes the amount of attention required to do an act—How ? What is the value of this fact to the life of man ?

4. "The only habit that Emile shall form is to form no habit"—Discuss the statement so as to bring out the importance of habit to education.

5. "Habits are good as servants but bad as masters"—Elucidate.

6. Explain James' laws of the formation of habit. How would you make use of them in forming habits in a child ?

7. Show by what method you would eliminate the following undesirable habits contracted by a child—

Smoking, writing foul language on the school walls, biting finger nails, spilling ink on the floor; coming late to school.

References:—

1. Gault and Howard: *An Outline of General Psychology.*
2. McDougall: *An Outline of Psychology.*
3. Stout: *A Manual of Psychology*
4. James: *Principles of Psychology.*
5. Morgan—*Psychology of the Unadjusted School Child.*

Chapter VII

EMOTIONS

NATURE OF EMOTIONS

An Emotion is a *stirred up state* of the organism. It arises in some unusual situation. Some emotions we experience when obstructions are met by life urges. We do not feel fear when we are safe, we feel it only when confronted with a situation that forebodes evil. Similarly anger is aroused when we see some one doing us harm.

Feeling is said to be the core of emotions. Feelings are of two kinds—of pleasantness and unpleasantness. They are elementary states and exist to some degree at all times. Every sense impression has a feeling tone. When feelings are very strong, they appear as emotions.

There is, however, one distinction between feelings and emotions. Feelings are not cognitive, but emotions are. Whenever we feel an emotion there is an object towards which the emotion is directed. If one object is removed, it will fix itself on another.

Emotions are the most *subjective states* of consciousness. They are individual experiences. Towards the same situation two persons may feel in two different ways—one may feel happy and another sad. Two boys witnessing the same game feel different kinds of

emotions at the prospect of one party or the other being defeated.

Every emotion is connected with a *conative urge*, that is, an impulse to action. It is for this reason that in common speech emotions are described as motives of action. One often says anger or fear made one do this or that. In the chapter on instincts it was pointed out that with every instinct some specific emotion is connected. This means that just as an instinct has a specific feeling tone, so too an emotion carries with it a conative urge which, according to McDougall, is its very life

Emotions have a *wide range*. The young and the old, the savage and the civilized man, the worldly man and the saint—all feel emotions. If at times they seem not to feel them, it is due to their having obtained control over their expressions. The emotional experiences of all persons are alike; only the objects at which the emotions are felt, and the manner of expressing the emotions, however, differ. The child feels anger when its toy is snatched away, the adult feels it when his house is snatched. The savage feels angry if one hurts a tree he worships, the civilized man feels so when some one attacks the hero whom he regards as his idol. The savage adopts simple and direct means to wreck vengeance, the civilized man adopts covert and indirect means.

PHYSIOLOGY OF EMOTIONS

When an emotion is aroused in the mind, important physiological changes occur. In an emotional

state activities of certain glands known as endocrine glands, are affected. They become either specially active or slow in their activities according to the nature of the emotion. The flow of the salivary and other juices is affected thereby. In anger, the quantity of both the salivary and the gastric juices becomes considerably diminished This affects the digestion of food. Thus a person who is given to constant fits of anger suffers form chronic constipation.

The glands that are specially connected with emotional states are the thyroid, the adrenals and the pituitary body. The thyroid is situated in the lower part of the neck. It manufactures certain substances. If there is an over-supply of them, the individual becomes extremely sensitive to pain, and to emotional situations. If the supply is slowed there is dullness. In anger, fear and resentment, the supply is increased.

The adrenals are two in number and they lie near the kidneys. In states of strong emotions these are more active than at other times. They manufacture a substance called adrenalin and discharge it into the blood. The amount of adrenalin discharged in the blood is greatly increased during an emotional state. This substance makes one become insensible to fatigue, brings eagerness, alertness and a sense of vigour and muscular power. In fear and anger, the supply of adrenalin is specially increased. This makes the organism prepared to meet any situation.

The pituitary gland is at the base of the brain This controls adolescent sex development. Whenever

deficiency in pituitary secretion occurs, there is mental sluggishness and deadening of emotional life.

JAMES LANGE THEORY

The close connection of emotions with internal bodily change led James and Lange to think that an emotion is nothing but the sum total of sensations which one feels at the disturbance of the body. The physical process comes first and emotions come afterwards. "We see a bear," Says James "run away and then we are afraid." We are afraid because we run and angry because we strike. This is just the reverse of the commonsense view

Many psychologists have disputed the contentions of James Lange Theory An actor while stimulating an emotion does not really feel the emotion, though the physical manifestations are there. Animals have been known to behave as if emotionally excited at the perception of appropriate situations, though nerves, that enabled the animals to have sensations from the interior of the body, were cut. Dr. Sherrington experimented with a dog and Dr. Cannon with a cat. The arousal of an emotion depends on how the object is related to the perceiver's mind. The external manifestations or organic feelings may intensify an emotion But they do not constitute its essence.

VALUE OF EMOTIONS TO LIFE.

Emotions are of very great value to an individual. Their presence sometimes saves his life. They put

energy in him. They are responsible also for the interest one shows in certain pursuits. Without emotions human life would be pale and colourless. An unemotional person does not make a good impression on any one. None likes him. Perhaps he can do little good to humanity.

There are some emotions, that we regard as definitely good e. g. the emotion of love. There are others which we regard as bad. Anger and fear are regarded as undesirable emotions. But even they are not bad from the biological point of view. They enable an individual to fight its enemies and protect himself from possible dangers. From a moral point of view also no emotion is in itself bad. It is the use which we make of it that can be characterised as good or bad. One has to fight for the liberty of his country; how can he do so without to some extent feeling angry at the wrong done to it? Thus it is not right to condemn anger irrespective of the occasion in which it is expressed.

Anger is sometimes a virtue. No individual is really a worth-while one who does not become angry sometimes. Again it is only the foolhardy that are without fear. We should fear real dangers and evils. Let the child be made to fear earning a bad name. Let him fear physical injuries that may come from rash actions. Let him fear God and conscience.

EMOTIONS AND HEALTH.

There is an intimate connection between emotions and health. Bodily health is affected favourably or

unfavourably by the arousal of certain emotions. The emotions have been classified from the point of view of health into contracting or depression type and expanding type. Constant arousal of the emotions of the former type, e.g., fear, anger, impairs health, whereas the arousal of the emotion of the latter class such as love and joy improves it. Certain emotions go along with a normal flow of gastric and salivary juices and others with a slowing or even stopping of the process. Digestion is accelerated or retarded in this way. If a man is given to fits of emotions of a depressing or contracting type, he might suffer from chronic disorder of the digestive process. Conversely, health may be improved if one usually feels nobler or expanding emotions. People who are too often subjected to anger and fear can never remain healthy; whereas those who habitually love others enjoy abounding health.

What is true in the case of bodily health is much more true in the case of mental health. In a state of depression we inevitably dwell on misfortunes. These may be real or imaginary. We very often invite misfortunes by dwelling on them. If a person is subjected to a depressing emotion too often he develops a habit of living in a state of depression. Such a habit is called melancholia. Inferiority complex is also developed in this way. A man suffering from it thinks that the whole world is jealous of him and is up against him.

TRAINING OF EMOTIONS

From what is said above the need of training

EMOTIONAL HABITS

An emotion after it is over gives rise to a *mood*. A mood is a hang over of an emotion. It may give rise to the same emotion a second time or may cause another emotion. A mood lasts longer than an emotion. This is to be distinguished from temperament. *Temperament* is an emotional predisdosition that is more or less stable. It disposes an individual to feel in a particular way. This is to be distinguished from a sentiment. A *sentiment* is [redacted] emotional attitude towards some object. It is a emotional disposition or a tendency to feel in a particular way at the presence of a particular object. It is generated by repeated arousal of a particular emotion in relation to the given object. When once formed, it gives rise to different emotions according to changes in situation. Thus constant arousal of the tender emotion towards the child creates a sentiment of love in the mind of the mother. This sentiment may give rise to emotions of love, anger or fear on different occasions. If the mother sees her child being caressed by a new person she feels love towards him; if she sees some one injuring him, she feels angry; and if she comes to know that his life is in danger, she feels fear.

A sentiment is regarded by McDougall not only as an emotional habit but as a conative-affective disposition. It makes an individual feel in a particular way as well as to act in accordance with the disposition. Like an instinct it is the basis of our actions.

The instincts, however, are inherited, whereas sentiments are acquired dispositions. They determine the interest of an individual in particular objects. They are the basis of voluntary attention. They also determine conduct and character. As a matter of fact, according to McDougall, the character of an individual is nothing but the organisation of his sentiments, the chief among which is the sentiment of self-regard. One who has many healthy sentiments has also a good character. Hence the problem of building a good character can very well be viewed as the problem of building healthy sentiments in the child. We may here outline how a healthy sentiment may be built.

BUILDING A SENTIMENT

The teacher can do a great deal in building a number of healthy sentiments in the mind of the child. While teaching the regular subjects of the syllabus, he can create in the child mind a love for his country and society. He can create an attitude of reverence towards God. He can also create a love for virtues, like honesty, courage, and industry. The child is to be made to feel at different objects in the proper manner. The constant arousal of feelings at such objects creates a sentiment for them.

Let us take an example. *Patriotism* is a healthy sentiment. The teacher can build this sentiment by referring to the glories of his country whenever occasions arise. He may compare the deeds of the great men of his country with those of other countries.

He may lead them to sing songs in the praise of his country or its heroes. He may encourage students to join scouting and go on excursion, to become directly acquainted with the conditions of the different classes of people in the country. Thus in a thousand ways he can create an attitude of love and reverence for his country. A sentiment so built is called Patriotism. It becomes the source not only of many worthy emotions but of many noble actions as well.

EXERCISES

1. Point out some of the important characteristics of Emotions. Is it correct to identify emotions with bodily changes ?
2. "We are afraid because we run' —Discuss.
3. How are emotions related to bodily health ? Explain in this connection the physiology of emotions.
4. What is meant by training of emotions ? Should emotions be repressed at times ?
5. Give examples of sublimation of emotions. How does the process of sublimation differ from that of redirection of emotions ?
6. What is a sentiment ? How is it related to an emotion ;
7. By some concrete example show how a healthy sentiment may be built by a teacher in the mind of the student. What is the value of such a sentiment ?

References:—

1. McDougall: *An Outline of Psychology.*
2. Sandiford: *Educational Psychology.*
3. Morgan. *Psychology of the Unadjusted School Child.*
4. Thomson: *Instinct, Intelligence and Character.*

Chapter VII

ATTENTION

NATURE OF ATTENTION

Attention is the activity of mind by which we get an object or an idea clearly before our consciousness. "To attend to a thing" says Wordsworth "is to be keenly conscious of that thing, it is to respond to that thing and disregard other things, and it is to expect something more from that thing." The aim of attention is to know a thing well. It is an activity of the mind that results in knowledge. It is conation determining cognition.

Characteristics of Attention.—There are certain marked characteristics of attention. When *one attends to a thing his mind is concentrated on one* thing. One is disregardful of others. The consciousness is focussed to a point and everything else is kept off the stage. Attention is *Selective.* Suppose one is reading an interesting book on Physics or is solving a problem in Mathematics. When attention to reading or solving problems is very keen, one becomes insensible to the stimuli that are assailing from without on the various organs. Not only this, when some of them draw one's attention to them they are annoying. Thus when a student is busy with his studies he feels it annoying if some one sings or plays a musical instrument nearby. Pleasant sensations loose their pleasantness

and become unpleasant. In an intense state of attention the individual becomes insensible even to pain stimuli. When a foot-ball player gets some bruise or cut in the middle of the game he is very often insensible to pain arising from the bruise or cut. He becomes conscious of the pain only when the game is over. Similarly soldiers in battle-field become insensible to injuries received during the heat of the action

The attentive process *involves analysis* of the situation one attends to. It is through such an activity that one understands the object better. Besides, attention is *constructive*. As we attend to a thing new elements of it appear. The object of our attention in a way changes. In other word , we are making the object anew .by the process of attention. All our knowledge is built up by analysis and synthesis of experience. Attention is fundamental to analysis and synthesis The flower which attracts our attention first as a visual sensation does not remain the same after we have carefully attended to it. We come to know certain aspects of it which were unknown to us before. After the process of attention the flower has become a new flower. We always live in a world of our own creation. The creation depends upon the different elements of knowledge we have and what use we make of them. In the last resort, it depends on the process of attention.

Attention is always *guided by some purpose.* We attend to things we are interested in. Things that portend evil or those that promise some good are keenly

attended to. Attention, in other words, satisfies a conative urge. It is through attention that the individual protects himself from harm or improves himself. From this it also follows that attention has an *anticipatory character.* It prepares oneself to meet a situation. When a military officer shouts to a soldier "Attention", the soldier becomes ready for action. He prepares his mind for the next order.

There are certain *motor adjustments* that take place when one is attending to a thing. Attention by its very nature is a preparation for action. It puts the body in readiness for it. One can distinguish a body attending to a lesson from the one not attending to it, by the very manner of his sitting or standing and physical expressions. When one is hearing to an interesting lecturer, one pulls out his neck, the eyes are wide open and the body is alert. Drooping eyes and easy postures are a sign of inattention.

Attention is always on the move. It shifts from one object to another or from one aspect of the same object to another. This characteristic is known as the *mobility of attention.* A moving, changing or a complex object may hold attention for sometime, but, a simple, motionless, unchanging object cannot hold attention for any length of time This fact is of utmost importance in controlling attention One cannot so control his attention as to make it fixed on a specific thing. We cannot hold attention to a simple thing for more than eight or ten seconds. Hence control of attention does not lie in keeping it from

shifting but in directing its shifts. Attention will surely shift but the next thing to which it will shift can be controlled. One can continuously attend to an object only if the object develops or new aspects come before the mind. In reading a book, we find a succession of ideas and topics. Thus attention becomes steady. but it is not immobile.

CONDITIONS OF ATTENTION

There are two kinds of conditions that determine attention—the subjective and the objective. Both the conditions are inter-related, but they may be viewed separately. Let us take the objective conditions first.

OBJECTIVE CONDITIONS—*Change* of stimuli whether in size or intensity attracts attention. A steady noise ceases to be noticed after a while. But if it changes, it is at once noticed. The regular ticking of the clock is not noticed, but if it suddenly stops it is noticed. Sudden changes are more likely to attract attention than slow changes. If a noise dies out gradually, it may pass unnoticed, but a sudden stop will be noticed. The change may be either in increase or decrease in the intensity of the stimuli. Objects that grow and move attract attention. This happens so because new aspects are always presenting themselves to the mind. The object shows new possibilities. In giving a lesson to a class this fact is to be borne in mind. Let the teacher change topics, draw maps, charts, diagrams, make children do things to hold their attention.

Intensity of the stimulus is a factor of advantage. A loud noise is likely to attract attention more than low murmur, bright colours attract attention better than dull ones. Children are specially sensitive to strong stimuli. The teacher's voice should be sufficiently loud. The picture he presents to the class should be full of colours. Bigger objects attract attention more than smaller ones. The teacher has to write bold letters on the board while teaching infants.

Repetition of stimulus is another factor of advantage. Repeat a cry or a call and it will be noticed, though it may not be noticed the first time. Lecturers repeat the important part of their statements to catch the ear of the audience. Teachers should do the same. The most important point in the lesson should be repeated so that it may be fully attended. But repetition should not be over done, else monotony will ensue and repetition will no more attract attention.

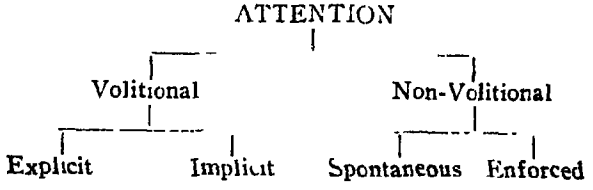
Striking quality or contrast attracts attention. A coloured picture is attended to better when placed beside pictures that are in merely black and white. A dwarf or specially tall man attracts attention, whereas persons of normal size pass unnoticed. All deviations from normality attract attention.

SUBJECTIVE CONDITIONS.—There is one chief subjective condition determining attention—it is interest in the thing attended to. This interest may be primitive or it may be acquired. *Primitive interest* is determined by the instincts or innate tendencies of the individual. Thus the child attends to what is new

or changing because it excites his curiosity. He attends to delicious food because it excites his hunger. He attends to the activities of other children because of his play tendencies. *Acquired interest* is determined by habit, sentiments and ideas one gathers during the course of his life experience, that is, his apperceptive mass. The child has no other interest in books except to handle them and to tear them They do not satisfy his other native urges. It is difficult to make him read them. But the adult will attend to books for several reasons. He has developed a habit of reading, perhaps he has a sentiment for a particular book. Again, he can attend to one subject rather than to another, because he has ideas of the former and not of the latter One boy is interested in literature and another in science for the same reason. Such attention is known as *apperceptive attention.* As the knowledge of a child about a particular subject grows, his power to attend to that subject also grows.

TYPES OF ATTENTION

Attention may be classified as follows—



We attend to an object either by an effort of the

will or without it. The former kind of attention is called volitional and the latter non-volitional. When the effort of the will is conscious and deliberate, attention is said to be explicitly volitional, when it is habitual, attention is implicitly volitional. There is no effort of the will in non-volitional attention. We attend to objects as impelled by our instincts or the force of outside stimulus. When our instincts impel us to attend to an object the process is named as spontaneous non-volitional attention. But when one has to attend a thing inspite of his will, attention is forced. Our attention to reading a difficult book is explicitly volitional; to reading newspapers is implicitly volitional. A mother's attention to the cry of her baby is spontaneous non-volitional, while her attention to a shout from without is forced. Volitional attention develops with the growth of ideas, habits and sentiments. It is determined by acquired interests. Non-volitional attention, on the other hand, is determined by native interests. Hence children can have little of volitional attention. It grows with the growth of experience.

ATTENTION IN EDUCATION

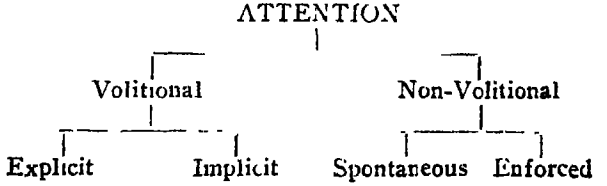
The education of the child is possible only by securing his attention to the lesson in hand. The capacity of a child to learn depends on his capacity to attend. The teacher should know the peculiarities of children's attention and he should know how to control it.

PECULIARITIES OF CHILDREN'S ATTENTION—The child cannot attend to many things at the same time.

or changing because it excites his curiosity. He attends to delicious food because it excites his hunger. He attends to the activities of other children because of his play tendencies. *Acquired interest* is determined by habit, sentiments and ideas one gathers during the course of his life experience, that is, his apperceptive mass. The child has no other interest in books except to handle them and to tear them. They do not satisfy his other native urges It is difficult to make him read them But the adult will attend to books for several reasons. He has developed a habit of reading, perhaps he has a sentiment for a particular book Again, he can attend to one subject rather than to another, because he has ideas of the former and not of the latter. One boy is interested in literature and another in science for the same reason. Such attention is known as *apperceptive attention.* As the knowledge of a child about a particular subject grows, his power to attend to that subject also grows.

TYPES OF ATTENTION

Attention may be classified as follows—



We attend to an object either by an effort of the

will or without it. The former kind of attention is called volitional and the latter non-volitional. When the effort of the will is conscious and deliberate, attention is said to be explicitly volitional, when it is habitual, attention is implicitly volitional. There is no effort of the will in non-volitional attention. We attend to objects as impelled by our instincts or the force of outside stimulus. When our instincts impel us to attend to an object the process is named as spontaneous non-volitional attention. But when one has to attend a thing inspite of his will, attention is forced. Our attention to reading a difficult book is explicitly volitional; to reading newspapers is implicitly volitional. A mother's attention to the cry of her baby is spontaneous non-volitional, while her attention to a shout from without is forced. Volitional attention develops with the growth of ideas, habits and sentiments. It is determined by acquired interests. Non-volitional attention, on the other hand, is determined by native interests. Hence children can have little of volitional attention. It grows with the growth of experience.

ATTENTION IN EDUCATION

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His *span of attention is limited.* The number of things one can attend to at the same time depends on one's experience or the appercetive mass. As experience grows the power to attend to many things also grows; for then relationship between different objects is apprehended. It also depends on habits. While learning typing, the novice can attend only to the letter he is actually typing. But later on he can attend to the whole sentence. It is because habits have made it possible for him to focus attention on one thing and do another at the same time. Again, change of attention is also made easy by habit.

While teaching children, this fact is to be borne in mind. Children should not be required to do two things at the same time. When an adult writes any thing, he pays attention to the matter as well as the manner in which thoughts are expressed. He takes care, at the same time, of the spelling of words, the grammatical structure of the sentences and the systematic presentation of ideas. Children, however, cannot attend to more than one thing at a time. If they attend to the matter, the handwriting or spelling suffers; if, on the other hand, they attend to handwriting or spelling, matter suffers. Similarly, while reading a passage if children pay attention to the pronunciation of words, they fail to grasp the meaning of the passage read; if they try to understand the meaning, they commit mistakes in pronunciation.

Children differ from adults in the *duration of attention* also. Children's attention is more mobile

than that of the adults. Concentration of attention to one thing requires an effort of the will. It involves expenditure of energy. Children can neither make an effort of the will nor have they much energy. Hence they cannot attend to a thing for long. Again the power of attending to a thing for long depends on understanding its meaning. This too is limited in children. Teachers should bear this fact in mind while teaching children. The length of the school periods should differ according to children's age, and in the same lesson-period constant change should be introduced in work. Handwork and head work should alternate with each other. If the children have been reading some book, let them resort to writing down something in their note books.

Children's attention is of the *sensorial type*, whereas that of adults is mostly intellectual. Children are moved by bright colours, loud noises. sudden changes. things that grow and move. They are attracted by pictures, paintings, events in the street rather than by some striking idea. This also explains why children attend to more objects than adults do. To the adults the sense stimulus is the starting point of many thoughts; it is not so to children. The objects of their attention are preceptual and in the absence of these they go to sleep.

Another peculiarity of their attention is the *lack of volitional attention*. Children's attention is usually of the non-volition type. Volitional attention requires the sacrifice of the present pleasure for the sake of the

future good This cannot be expected of children. It grows with growth of ideas and sentiments. Hence we should not expect children to have too much of volitional attention. Lessons should be taught in such a way that only spontaneous attention is made use of in the beginning.

THE CONTROL OF ATTENTION.—The control of attention depends on the *culture of interests* in the mind of the child. We attend to what we are interested in. The child in the beginning has only primitive interests. He attends to objects of curiosity, play etc. Later on he begins attending to objects of derived interest. This happens due to the former class of objects becoming associated with the latter. This process is just like the conditioning of reflexes The child likes attending to pictures, but not to the alphabets written below the pictures. But when he learns that the alphabets tell the secrets about the pictures, he begins to attend to them. We should connect what is uninteresting to something that is interesting to the child.

Doing helps attention. The child should be led to use his hands and speech as much as possible. Let children answer and ask questions, let them write something in their note books, let them read aloud, come to the blackboard, draw maps and charts and they will never grow listless

Control the shifts of attention. This can be done by changing subjects and topics. The teacher cannot make children fix their attention to the same thing

for long, but he can easily control the movement of attention. He can direct children's attenion to a thing which he likes they should attend to.

RELATION BETWEEN THE INTERESTING AND THE AMUSING.—We have pointed out before that education is possible only by securing the child's attention to the lesson in hand, and this is done by making it interesting. Here it is necessary to understand clearly the meaning of the word "interesting" and to distinguish it from what is "amusing" An interesting lesson is that which secures the attention of the child and benefits him by adding to his knowledge; an amusing lesson, on the other hand, merely secures the attention but does not benefit the child. The aim of a teacher shuld be to make his lesson interesting but by no means amusing to children. In making a lesson interesting, the teacher has not simply to excite the natural impulses of the child, he has also to arouse his apperceptive mass and to appeal to his sentiments, including the sentiment of self-regard. As the child grows, he will be more and more impelled by acquired motives rather than by the innate ones. Unless the teacher does so, neither the child's knowledge nor his character will grow. When the teacher caters simply to the whims of children, he cannot educate them though he may amuse them. The solving of problems in mathematics or science, the learning of spellings etc. can seldom be made interesting in themselves. Here the sentiment of self-regard will have to be appealed to.

THE DOCTRINE OF SOFT PEDAGOGICS.—The doctrine of soft pedagogics requires a teacher to make every thing easy and pleasant to the child. As a baby runs to get milk from its mother, so should a child run to get lessons from his teacher, This view, however, betrays an ignorance of the purpose of education. All the task that is done in the school can not be made pleasant. The child has to do much that is unpleasant. A child who fails in doing such task has to be punished. The teacher who merely appeals to the native interests of children does them both moral and intellectual harm. The development of intelligence requires the subordination of impulses to reason. The higher centres have to be made active. The child instead of living at the sensational level is to be made to live at the ideational level. This requires sacrifice of immediate interests. The development of morals also requires the control of one's impulses by reason.

By what is said above it must not be understood that a teacher should make his lesson unnecessarily difficult to train the will of the children. This training is even otherwise attained. There are easy subjects in the school curriculum and there are difficult ones. The difficult ones will naturally train the will. Hence the easy ones need not be made difficult.

EXERCISES

1. What is meant by saying that attention has an anticipatory character ? How does it affect motor adjustments ?

2. "Control the shifts of attention rather than control it from shifting"—Explain and point out the pedagogic value of the doctrine.
3. Enumerate some of the objective conditions of attention. Why does change attract attention ?
4. Distinguish "primitive interest" from "acquired interest". How are the two made use of in the education of the child ?
5. Classify attention. Which kind of attention is common among children ?
6. How does children's attention differ from that of adults ? What is the pedagogic significance of the difference?
7. How can you help the child to control his attention ? When is the control possible ?
8. What is the difference between the amusing and the interesting ? Why is the doctrine of soft pedagogics regarded unsound ?

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1. Woodworth: *Psychology.*
2. McDougall: *An Outline of Psychology.*
3. James: *Talks to Parents and Teachers.*
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5. Gault and Howard: *An Outline of General Psychology.*

Chapter VIII

SENSATION AND PERCEPTION

NATURE OF SENSATIONS

What Are Sensations ?—Sensation is the most elementary form of cognition. It is an awareness produced in the mind by the stimulation of sense organs. Woodworth calls sensation as "the first response of the brain to the external stimulus."

The stimulus acts upon the sense organs or the periphery of the sensory nerves. This results in the stimulation of the sensory nerves. They carry the stimulation to the nerve centre in the brain. The awareness so produced is sensation. The stimuli may be either in the body or outside it. Thus sensations of colour, sound, taste, smell etc. are produced by stimuli that are outside the body, whereas organic sensation, such as, sensations of hunger, thirst, headache are produced from within the body

Sensations in Relation to Adult Minds—Sensations are the stuff out of which perceptions and other forms of cognition develop. They are, so to say, the raw material of all knowledge. But though they are so fundamental to all knowledge, in their pure form they are seldom availsble to the adult mind. Sensation is the awareness of a stimulus when meaning has not been added to it. As soon as meaning is given to any form of awareness, it ceases to be sensation

and at once becomes perception. What we usually become aware of are not sensations as such but objects, that is, the sensations are interpreted in terms of past experience; they are apprehended as objects as soon as they enter adult consciousness. From this it is evident that only a few days old baby can have pure sensations, since it has no capacity to add meaning to them. So far as the adult mind is concerned a pure sensation is, as Ward says, "a psychological myth."

ATTRIBUTES OF SENSATIONS.—Sensations have certain marked characteristics. These are called attributes of sensations. They are-quality, intensity, duration and extensity.

One sensation differs from another in *quality*. Thus sensations of colour, sound, taste etc. differ from each other in quality. Then there are differences in colours and sounds. Green is different from red; musical sound is different from noise. They are signified by differences in quality. The former kinds of differences are called generic differences, the latter are called specific differences. In the generic differences, there are different kinds of stimuli, different kinds of sense organs, and different kinds of sensory nerves. It is not so in the case of specific differences in quality.

Sensations also differ from each other in *intensity*. The differences in intensity occurs in the same quality of sensations. Thus bright light is different in intensity from a dim one; a faint sound from a loud one; a strong smell is different from a weak one. Generally a power-

ful stimulus produces sensation of greater intensity and a weak stimulus produces sensation of less intensity.

Duration is another attribute in which one sensation may differ from another. A sound that lasts for a minute produces a different effect in the mind than the one which lasts only for a second. The intensity of the sound may be the same, but due to difference in duration the sensation produces different effect in the mind.

Another characteristic in which sensations differ is their *extensity* or voluminousness. Extensity of the sensation is due to the area of the sensory surface being affected by a stimulus. Thus the impression produced by looking at a star is different from the one produced by looking at the moon. The touch of an object by a finger tip is different from the touch of the same object by the palm of the hand.

WEBER FECHNER LAW.—Different individuals have different powers of recognising differences in intensity of sensations. Thus one may distinguish finer shades in colour much more readily than another individual can; another man may distinguish differences in weight more easily. But there is uniformity with regard to all persons' power of recognising difference in the intensity of sensations in relation to the original stimulus. Thus given a certain stimulus, it can be told how much of intensity should be added to it in order that the subject may become aware of the change. The amount differs for different kinds of stimulus. Thus for lifted weights, it is about one-thirtieth; for pressures on finger tips it is one-twentieth,

for brightness one-hundredth, and for sound one-third. These differences are called differential threshold for different kinds of sensations.

Weber's Law states that individuals do not become aware of a difference in the sensation due to an increase in them by an absolute amount, they become aware of it only when the difference bears a certain relation to the original stimulus. "The just appreciable difference depends on the ratio of that difference to the magnitude of the object, and not on the absolute difference between the magnitudes." Thus one gram of weight added to 100 grams will not be recognised, while the same weight added to 10 grams will easily be recognised. For one gram is only $\frac{1}{100}$ of 100 grams, whereas it is $\frac{1}{10}$ of 10 grams. Similarly one candle light added to a hundred candle light will not produce such an appreciable awareness of intensity as when the same amount is added to a place lighted by only ten candles.

SENSE TRAINING

The Aim Of Sense Training.—Sense Training may have two aims—first, increasing the sense acuity of the individuals and secondly, to develop in them an ability to use their senses properly. By the sense acuity of an individual is meant the power of the senses to be stimulated by a weak or a strong stimulus and to appreciate differences in intensity of the sensations. In other words, it means sharpness of the senses. Many psychologists hold that so far as acuity

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of the senses is concerned, it is a native quality, and it cannot be increased by any amount of training. Hence, what sense training has to aim at, is to increase the efficiency of the senses in performing the work that they are meant by nature to do, and so to increase their usefulness to the individual. Sense training thus aims to give practice to the child in the proper use of his senses

MONTESSORI METHOD.—There are various methods of training the senses. Madam Montessori has devised a very ingenious method of training the senses. This is known as the Montessori Method. Her method consists in isolating each sense and training it with the help of *the didactic apparatus*. This apparatus is devised by herself and its use is a special feature of the Montessori Method. The apparatus consists of many play-things for children. While children are engaged in their play with the apparatus, their different senses are trained. Thus they are imparted training in recognising weights, distinguishing colours, sizes and shapes of objects and distinguishing sounds.

This method has been applauded by most educationists and it is now spreading everywhere throughout the civilized world. There are, however, some critics who think that there are very glaring defects in the method which its admirers have overlooked. Thus William Stern points out that the principle of isolating the senses from one another for the purpose of training them is pedagogically unsound. The individual who is so trained may have nice discrimina-

ting power, so far as the sensations themselves are concerned but he may not be able to use his senses better. For this practice in coordinating the work of the senses is necessary. Children's ordinary experience of touching, seeing and hearing things gives this practice better than what can be gained by the Montessori apparatus: for the very purpose of the use of the apparatus is not to give this training. The individual who is so trained will not be one who can intelligently use his senses; and if an individual trained under this method uses his senses properly, it is inspite of the training rather than because of it. The apparatus is so mechanical, and the whole method so artificial that rather than developing intelligence through the proper use of senses, it is calculated to cripple its growth. Hence, William Stern advises that the senses of children should be trained through our ordinary familiar method of habituating children in their use.

PROPER USE OF THE SENSE ORGANS

The efficiency of the sense organs is increased by their proper use. In this connection the teacher has to learn specially the proper use of the eyes by children. There are some children who have inborn defective eyes, but there are many more who acquire defects due to the improper use fo the eyes.

The most common defect among children is short sightedness. This is acquired through children's reading small prints from a very early stage or through doing much writing task or needle work. When children are

required to read too much, the early strain results in making children's eyes unfit for seeing distant objects.

Faulty method of holding the book or keeping it too near the eyes while reading, results in another defect, namely, convergence. While seeing near objects, the eye-balls have to converge more than while seeing distant ones. When the balls are required to converge, too often a permanent defect in the eye is created.

These defects can be partially remedied by eye glasses. It is the duty of teachers to detect the defects early, else children suffer from many physical ailments and emotional instability. They have headaches, nervousness and irritability of temper. They lose the power of quick comprehension and thus become mentally retarded.

There are some children who have some inborn defects in the ear. These cannot be removed. But an early detection of these defects is necessary, for then the method of teaching them can be so modified as to yield the greatest benefit to them for children themselves seldom learn that they have defective eyes or ears. It is for teachers to find them out and give suitable advice to the parent or guardians.

PERCEPTION

PERCEPTION AND SENSATION—Perception is an awareness of sensation with meaning. The process of perception thus consists in the interpretation of sensations. Suppose a dim noise is heard at distance, and one's attention is drawn to it. The first awareness of this noise is a mere sensation. But

soon one begins to think as to what kind of noise it is—whether it is the noise of a crowd of people, or the noise of moving trains or of ringing bells. As soon as the sound sensations are so interpreted they become percepts and cease to be mere sensations. Sensations are presentative, whereas percepts are presentative-representative in character.

It is characteristic of our consciousness that nothing in it remains as an isolated fact even for a moment. When any awareness is created in our minds this awareness is at onee related to some previous experience; it is given a definite place in the whole setting of one's experience In other words, all awareness comes with meaning. Hence it was said that a pure sensation is a myth. Meaning is introduced in sensations even when we recognise them as belonging to one class and not to another.

PERCEPTION AND IDEATION—All perceptions involve memory and imagination. I see a long rope-like thing in the dark. I think it is a snake. How was it made possible ? Surely it is memory of the previous experience that enabled me to interpret the visual sensation as a snake. I hear a noise at the door; I interpret it as the sound of the footsteps of a friend whom I was expecting. Here it is imagination that got mixed up with the actual experience. It is sometimes said nine-tenth of our perception is mere inference. The saying is correct, as we see that without previous experience a perceived object can acquire no meaning. Much of our ordinary perception

is *apperception* or interpretation of what is actually perceived.

DEVELOPMENT OF PERCEPTION.—As experience grows the power of perception develops. Suppose a child is given an orange. He has no experience of an orange before. He becomes acquainted with this object through a series of sense impressions. All the information he receives must come through some one of his senses, He sees the object at a distance and gets the visual sensation of yellowness. He tries to grasp the orange and gets the touch sensations The orange feels soft and cold. He breaks it, bites it, and presses it and thus gets sensations of pressure and taste. These various sensations are blended together into a unity. This unity is the percept we call orange. It is the child's experience of orange. When the child has thus known through the experience of various sensations what an orange is, he no more requires to go through the previous processes of the mind to know an orange. The mere sight of a yellow patch is sufficient to cause the perception of orange; for at the sight of the patch previous experienee connected with it is aroused and thus the total experience is not of a yellow patch but of an object. This experience has both memory as well as sensory elements in it.

NATURE OF CHILDREN'S PERCEPTS

Children's percepts are fragmentary, unstable and mixed up with imagination. The child cannot see an object for long; its attention is of a very fleeting nature.

Hence the child can seldom observe the complete features of an object. The child while looking at a bird, will not observe its beak, wings and legs at the same time. For it has no patience to see so many things. Hence its knowledge remains fragmentary. It lacks in details.

The second feature of children's percepts is that they are unstable. The child cannot see an object for long for lack of developed interest. It is only people who have developed interest that keep on to one percept for a long time, since they examine the various features of the object. The child's lack of names also makes its percepts unstable.

The third feature of children's percepts is that they are mixed with imagination. The child may look at a coat hanging on the wall and may tell his mother that he has seen a giant in the room. This is due to the rise of fear in his mind. This stirs up his imagination and so all kinds of pictures are called up. They vitiate his perceptions. Thus children's evidences are not to be relied on. Children are also very much suscep tible to suggestion. A child begins seeing what he wants to see or what he is told he should see.

The child has limited power of interpreting the sense experience. Hence he can not perceive as many, things at the same time as an adult can do. Nor can he perceive them as quickly as we do. While teaching children this fact is to be borne in mind. Only one thing should be presented to them at a time. What is told to them should be done slowly.

clearly and distinctly. Children require to spell every word they read. Similarly, they must hear every word of what is said in order that the matter may be understood. The adults do not need it; for their greater power of interpreting sense experience enables them to fill in the gaps between words with the help of imagination. It is the power of filling in gaps by the help of imagination that accounts for the quick comprehension in the case of adults and the lack of it in the case of children.

OBSERVATION

ITS NATURE.—Observation is a higher process of the mind than mere perception. It is defined by some writers as *regulated and concentrated perception.* But it is much more than this. Observation involves a clear consciousness of purpose. It is perception directed by thought. The more developed the thinking capacity of a person the better would be his observation. Children are supposed to be better observers than adults. But this is wrong. They ask many questions about the objects that they come across. This is due to their lack of knowledge of those objects. Adults have all such common knowledge of the objects; hence the questions that arise in children's mind about them do not arise in their minds. But whenever they observe an object they do so better than children; for they have better thinking power and more developed interests.

TRAINING OBSERVATION.—Children are ever looking for new things and asking questions about them

The adults should not discourage this tendency, but rather by proper answers to their questions should encourage them. The teacher can direct the observation of the child by suitable questions. The child may be allowed to handle the object and make a drawing of it Such guidance from the teacher is necessary because the independent observation of children is mixed with fancy. The child is guided in his observation by feelings, impulses, and fancies of the moment rather than by any desire for accuracy and truth.

The teacher has a larger stock of ideas. He is like the expert doctor pointing out the symptoms of a disease to an amateur. If the child is left to himself in observing a thing, he would observe only those aspects which he knew beforehand or those which at the moment strike him as queer. There is lack of purpose in most of his observation It is the duty of the teacher to suggest the view point from which the thing is to be looked at. Observation becomes meaningful only when a point of view is developed in the child's mind.

Children should be required to tell what they observe This is very necessary in order to develop the power of observation. Effectiveness and accuracy of observation is to a large extent determined by the ideas one possesses and these in turn are determined by the use of words. Ideas and words develop in close inter-relation; hence in requiring children to make proper use of words, we are requiring them to frame clear ideas, Thus expression in clear language of what

children observe is not only a test of their observation, but it is also a means to fix and classify the ideas that the child possesses.

Lessons in Nature study and object lessons are intended to train the power of observation of children. In these lessons, the teacher should develop a point of view in the child. The teacher himself should not tell the children what he sees. He should, by carefully framed questions, lead the child to see various aspects of the object. Then he should require the child to describe his completed observation.

Exercises

1. What are sensations ? How can they be distinguished from perceptions ?
2. What is meant by sense training ? Describe some educational method that aims to train the senses.
3. How does perception develop in children ? In what respects do the children's percepts differ from those of adults ?
4. Distinguish between observation and perception. How can children be trained in observations ?
5. Are children better observers than adults ? In what respects are their observations defective ?
6. Describe a lesson in observation. What are the aims and special features of such a lesson ?

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3. Stern: *Psychology of Early Childhood.*

CHAPTER IX

MEMORY

NATURE OF MEMORY

WHAT IS MEMORY.—Memory is a knowledge of a former state of the mind with the added consciousness that it has occured before. There is a tendency in the mind to conserve its own past experience, so that it may be available for future use. It is the basis of recognition of new objects and the growth of knowledge. We have seen before that in all perceptions memory is involved. In other words, the past experience determines the nature of the present experience. Thus remembering or memory is a fundamental fact of human consciousness. All thinking is based on memory.

Lower animals as well as men have the power of remembering to a certain extent; but whereas in the case of the former remembering is implicit, in the case of man it is explicit. Animals cannot recall their experiences as well as we can do. This is due to their having a less developed brain. They have no power to make use of words which stabilise experience and make it available for future use. Thus men are superior to animals in memory and the capacity to think.

FACTORS OF MEMORY.—Memory is constituted of four factors—Learning, retention, recall and recognition. These factors are not separable from one another. Each is so intimately involved in other factors that

description of any of them involves a description of the others also. We may, however, for a systematic exposition of the subject take them up separately.

LEARNING

VALUE OF LEARNING.—Learning is fundamental to remembering. What is well learnt is well retained and can also be recalled when needed. Thus learning is one of the basic factors of memory. Learning implies retention; for the only proof that a thing has been learnt well is that it is properly retained in the mind. What helps learning helps rentention also. Some writes for this reason do not take up the problem of learning while discussing memory They content themselves with giving conditions of retention and in so doing describe all the essential conditions of learning.

We have dealt with learning generally in a previous chapter. Here we may consider learning specifically as an intellectual process.

METHODS OF LEARNING.—There are two main ways of learning—learning through mere repetition and learning through observation. Mere repetition fixes an impression in the mind. When the material to be learnt is a set of non-sense syllable, this is perhaps the only method that one can adopt. But while learning sensible material we try to discover the meaning of words, their mutual relationships, and the general sense of the passage. We learn with the help of meaning and laws of association. For fixing a passage of prose or poetry in mind, the essential thing is to see the sense.

If the student gets the point with absolute clearness, he has pretty well committed the passage to memory.

Even in the case of non-sense syllables, such as nok, koj, wok, pan, zut, hip, seg, ron. piz, learning is helped by observation. One might discover similarities and contrasts between different syllables, read meaning into them or may group them into pairs or discover rhythm. We have seen before how doing helps learning. Now this doing may be with the hand or it may be with the head. Observation is a form of doing; it is thinking and trying to find meaning. Hence it makes learning easy.

ECONOMY IN MEMORISING.—Much of the school work requires memorising. Hence it is important to know what are the best methods of memorising a given material. We have already observed that mere repetition is not as efficient a method of study as observant study directed towards finding out the relationship of parts and the meaning of the whole passage. Experiments have been made with differeut methods and the results show that some methods are better than others. We shall briefly show the best features of these methods.

RECITATION METHOD.—Recitation method consists in reciting to oneself a piece after it has been read once or twice and looking to the passage when one is forgetting it. Learning with recitation is more economical than continuous reading of the passage. In the case of sensible material recitation ought to begin earlier than in the case of nonsense syllables, and it is more effective also in the long run. In an

experiment conducted by Gates, it was found that in the case of 16 non-sense syllables learnt for 9 minutes, the students could remember only 35 percent of the material when all time was given to study, they could remember 50 percent when $\frac{1}{5}$ of the time was given to recitation; 54 per cent when $\frac{2}{5}$ of the time was given to recitation and so on. In the case of sensible material also there is a distinct gain when learning is accompanied by recitation.

Learning with recitation is effective because it is more stimulating and more satisfying. When one learns with a view to recite to oneself, one is more observant than otherwise. One tries to grasp the peculiarities of the words, their relationships and the meaning of the passage. Again, recitation shows the amount of success one has attained and thus increases interest in the task. One tries to find the peculiarities of the unlearnt parts and thus they are easily mastered. The greatest point of advantage in recitation is that it makes one do the same thing as one has to do to the end of learning. If faultless recitation is the end which one wants to achieve, the best method would be to practise oneself in recitation. In recitation method one does the same thing with the help of some prompting object as one would have to do later without it.

SPACED AND UNSPACED LEARNING.—Spaced learning is more economical than unspaced learning. It is better to read a given passage a number of times, then leave a gap and then read it again rather than read it at a stretch. The results of spaced and un-

spaced learning as found in experiment by Jost are given below:—

EFFECT OF SPACED STUDY ON ECONOMY OF MEMORISING

Distribution of 24 readings	Total score of B.	Total score of M.
8 readings a day for 3 days	18	7
6 „ „ 4 „	39	31
2 „ „ 12 „	53	55

Here we see that the widest distribution gives the best result. Hence if we want children to commit a certain poem or a passage to memory, it is always profitable to make them read it two or three times a day for several days rather than make them learn the poem on one day. It fixes also the matter more durably in the mind. What is crammed in just before the examination by continuous repetition is soon forgotten after the examination.

Spaced repetition is more effective than unspaced, because in the latter case the work becomes boring due to monotony; the freshness of the mind which is a factor of advantage in spaced learning is absent in the case of unspaced learning. Moreover during periods of rest, the learnt material becomes better set in the mind by the process of subconscious cereberation.

WHOLE AND PART LEARNING.—Whole learning is more efficient than part learning. If such a poem as "The Psalm of Life" or "Solitude of Alexander Silkirk" is to be learnt, it is more profitable to read the whole

poem several times, rather than to learn it stanzawise. In an experiment conducted by Pyle and Synder it was found that with a poem of 240 lines, twenty per cent of the time was saved by learning through the whole method. Here are the findings of the experiment—

WHOLE AND PART METHODS OF LEARNING
(PASSAGE OF 240 LINES)

Method of study	Number of days required	Total number of Minutes required
30 lines memorised per day, then the whole reviewed till it could be recited.	12	431
3 readings of whole per day till it could be recited.	10	348

The factor of interest works in favour of the whole method. The apprehension of meaning of the passage helps in learning it. Moreover false associations that are created by the part method are absent in the whole method. Only right associations between parts are created. Thus if one is committing to memory "The Psalm of Life", the desirable associations are between the last word of the first stanza and the first word of the second, whereas in learning by the part method assocaiation between the last word of the first stanza and the first word of the same stanza are formed. Thus—

Tell me not in mournful numbers
Life is but an empty dream,
For the soul is dead that slumbers
And the things are not what they seem.
Life is real, Life is earnest,
And the grave is not its goal,
Dust thou art, to dust returnest
Was not spoken of the soul.

Here desirable associations are between "seem" and "life" and not between "seem" and "tell". In learning by the whole method, since it requires the attention to go from "seem" to "life", the desirable associations alone are formed; whereas in the part method association is formed between "seem" and "tell" since attention goes from "seem" to "tell". The formation of wrong associations hinders the speedy learning of the poem.

RETENTION

NATURE OF RETENTION—Retention is a resting state of the impressions. The deeper the impressions formed during the process of learning, the better the retention Some persons have better retentive power than others. This depends on the quality of the brain they possess. One cannot improve this brute retentivity; it is given by Nature once for all. Children differ in their power of retention, hence some are better memorisers and more intelligent than others. In order to make an impression retained, one should try to make it strong. Now the strength of the impressions depends both on the nature of the brain and on the manner and the

number of times the impressions are received. Thus the following conditions determine the strength of impressions:—

(i) Recency of impressions.
(ii) Frequency with which they are received.
(iii) Interest going along with impressions.
(iv) The associations formed between different impressions.

Let us consider the above conditions one by one

RECENCY.—Recent impressions are likely to be better retained than remote once. With lapse of time an impression becomes weak and tends to disappear. If this were not so we would remember all the experiences we ever had in our lives. There are some people who believe that what is once known is never really lost from the mind But such a statement is extravagant. It would mean all the lessons we ever learnt, the lectures we ever heard, the stories we ever read and scenes and happenings that ever got our attention are still remembered by us. There is no evidence for such a view. There are, on the other hand, experimental evidences to show that as time passes a learnt fact tends to be lost.

FREQUENCY.—The more frequently is a lesson revised the better it is retained by the mind. Frequent revision makes the original impressions deeper. Besides, frequency also works on the side of recency, for if an impression is being frequently made, much time would ro have been allowed to laspe when it is recalled.

INTEREST.—The retention of an impression is also determined by the interest with which it is originally received. One remembers a thing that one desires to remember. Even the dullest student has a good memory for certain class of events. The merchant remembers prices of articles, the lawyer the names of his clients and law cases, the cricket player the names of the best players and the scholar the contents of books studied by him In each case retention is determined by interest. Interest in the material makes one turn it in the mind over and over again In this way the impressions not only deepen but they remain fresh. Moreover there is another factor also that begins to operate, namely, association of ideas.

ASSOCIATION.—When two impressions are received together they become associated with each other, so that when one is recalled the other also tends to be recalled. *The excitation of one impression serves* as a stimulus to another impression associated with it. The better an idea is associated with other ideas, the greater are the chances of its being well retained. For due to association when one of the ideas is excited, the others tend to be excited and thus impressions about them become deep. An isolated idea is likely to be lost from the mind due to atrophy or through disuse.

How are associations between ideas formed? There is only one principle determining the association of ideas, namely, attention. What is attended to together is associated together in the mind. Supposing the child has always heard only the school bell, and never heard

the temple bells or church bells, then the bell and school will become intimately associated with each other. Whenever the child thinks of the bell, he will think of the school. But if he has heard bells from *different places, the impression of the bell will become* associated with the impression of those places also.

LAWS OF ASSOCIATION

Psychologists have tried to formulate certain laws according to which ideas become associated with one another. There are three fundamental laws—The law of contiguity, the law of similarity and the law of contrast.

CONTIGUITY.—When an idea is received in the mind just after another idea, the two become so associated with each other that when the second is recalled, the first will also tend to be recalled. Thus one stanza of a poem recalls another stanza because they are associated by contiguity. This is due to the fact that attention is paid to them one after the other in immediate succession.

SIMILARITY.—Similar ideas tend to be associated with one another. Thus the idea of one bird becomes associated with the idea of another bird, one city with another city, one poet with another poet. This happens because when an idea is received in the mind, it serves as a stimulus to other similar ideas and they are partially recalled at the reception of the idea. As a matter of fact till they become re-excited the new idea is not fully apprehended. We

always understand the new in terms of the old. Thus a new impression becomes associated with other similar impressions at the very time it is received by the mind. Now, since links are formed between the new and the old, they tend to recall one another.

CONTRAST.—Contrasted ideas also become associated with each other in the same way as similar ideas. When we apprehend an idea, we not only try to see its similarity with other ideas but we try to see the difference also. Thus in both cases of similarity and contrast, ideas become associated with one another because they are attended to together. Nero may remind us of Asoka and Aurangzeb may remind us of Akbar.

Some writers think that the law of contrast is not an independent law; it is only a form of the law of similarity. Absolutely contrasted things do not remind *us of each other. The swan may bring to mind the* contrasted idea of a crow or a stork, since both are birds; but it will not bring the idea of a tiger. In the apprehension of the "swan" idea of animals is not needed but of birds is needed. This shows that no association is formed between absolutely dissimilar facts.

The teacher who wants to make his lesson well fixed in the minds of the students should take help of the above laws of association. He should make use of time-charts, geneological tables, compare one fact or character with another, and bring out points of contrast. If the students themselves do it, they will have

all the greater benefit from the lesson. The teacher's work should generally be one of guidance.

RECALL

NATURE OF RECALL.—Recall is a learned response to a stimulus. Recall is determined by retention on the one hand and by the presence of an adequate stimulus on the other. If two ideas are associated with each other in the process of learning, the one tends to recall the other, that is, each idea serves a stimulus to bring the other to consciousness. The conditions that determine recall are the same that determine retention, namely, association of ideas. If in actual experience one idea has been received after another, since they have become knit together by law of contiguity, the one will help in the recall of the other. Likewise, similar and contrasted ideas tend to recall each other due to association by similarity and association by contrast.

BLOCKING OF RECALL—Sometimes a well learned fact does not come up to the mind just when we want it. That there are impressions of it in the mind is proved by the fact that it comes up to consiousness when it is no more needed. We sometimes forget the name of a person just when we want it, though later on it comes up automatically to consciousness. Students sometimes forget the answers to the questions in the examination hall; they remember them when they come out of the hall. It is seen that sometimes a speaker forgets the link between the ideas of a well learnt speech

just when he comes up to the stage. This usually happens with beginners.

In all such cases as cited above there is some sort of inhibition or interference that blocks recall. One type of interference is emotional. Fear may paralyse recall. This is so in the case of the examinees forgetting answers to the questions. Anxious self-consciousness or stage-fright prevents the recall of a speech by novices in the art of speaking. They all the time think of making a striking success of themselves This makes them over-anxious and self-conscious, and thus they fail. *Distraction* is another factor that blocks recall. If there are similar ideas associated with each other they sometimes get into each other's way during recall.

HELPS IN RECALL—A Confident tranquil attitude of the mind is a proper condition of good recall. One should avoid self-consciousness and worry when recalling something. One should not doubt, for doubt is a great distraction. It interferes recall as nothing else does. Auto-suggestion is of great help in this connection

One should drop the matter for a while when one finds himself set on a wrong track, and after some time come to it again when fresh. Worry and doubts make interference strong. They die away or become weakened when the matter is dropped for some time. It is why one can recall better in the second attempt.

From the fact of "blocking of recall" a teacher has to learn certain important lessons. While teaching a lesson he should present it in an orderly

fashion, else ideas not properly associated with each other will get into each other's way during recall. In early stages wrong forms of words should not be allowed to get into the mind, else they would act as distractions during the recall of correct forms. When a student has learnt the wrong spelling of a word and later on learnt the correct spelling, the wrong spelling creates a doubt in the mind when the correct one is being called up to the mind. Hence wrong forms should never be presented on the board or repeated by the teacher. He should give only the correct forms and get them repeated by the student.

There are many educationists who question the value of dictation in teaching spelling "Dictation." says Tomkinson, "has never taught and can never teach spelling." The aim of dictation exercises is to fix spelling already learnt and not to teach new ones. Hence a teacher should not give to students such dictation exercises as cannot be written by them with the fewest possible mistakes. For, when a student commits a mistake in writing a word, the wrong form of the word gets impressed in his mind and this impression is seldom completely wiped out. So even when the student has written the correct form a number of times, the impression of the wrong form creates doubt during the process of recall. A teacher might question-why should dictation exercise be given at all, if it be so easy that all the students write it correctly? The answer is: it fixes the spellings already learnt by the students. If the students

would not have done the exercise, they would have forgotten what is already learnt. Hence dictation makes firm what is learnt by students.

RECOGNITION

Recognition consists in knowing the object as having been experienced before. It may be more or less complete. At its minimum, it is simply a feeling of familiarity with the object; at its maximum, it is locating the object precisely in the past experience. Recognition is not dependent on recall One may not be able to recall the exact situations when one met a person and yet one may recognise him at once as one who met before We can recognise many things which we cannot recall. We recognise faces and names that we cannot recall. The recognition vocabulary of a person is much greater than his application vocabulary. The words he can understand are much more than those he uses in his own speech. We may characterise recognition as partial recall. In the case of recall the stimulus is not as powerful as in the case of recognition.

Our power of understanding things depends on our power of recognition. For the process of apperception, which is essential to understand things, involves recognition. There are some students whose power of recall seems to be weak as judged by the ordinary examinations, yet they may be quite bright and their understanding may be good. For understanding depends

on recognition which comes without much effort. Recall, on the other hand, requires mental effort.

This must not, however, lead us to suppose that there is no relation between recognition and recall. As a matter fact, the greater the power of recognition in a man, the greater is his power of recall.

FORGETTING

Forgetting may be due to the weakening of original impressions or it may be due to blocking of recall. Besides these there may be cases of active forgetting. Ideas that are associated with unpleasant experiences do not come up to consciousness, even when an adequate stimulus is present. Such ideas are withheld by the mind so that they may not revive unpleasant memories. But the memories themselves do not die away. They are present in a hidden chamber of the mind and continue to act in some way. They become associated with similar other ideas and thus form complexes. In pathalogical forgetting it is such complexes that work. Thus a lady may forget the face of a person whom she loved before, just because there is a complex of hatred in her mind regarding him. Children forget lessons taught by an unsympathetic teacher. Poetry lessons learnt in detention class are forgotten for the same reason.

Leaving such cases aside one might like to know the rate of forgetting in normal cases. Ebbighaus made some very important experiments to determine the rate of forgetting with lapse of time. He utilized

what is known as *the learning and saving* The method consists in making the subject given material. Then some time is allowed After this he is made to learn the same material over again. It was found that the subject takes much less time in learning the material a second time.

Forgetting is quick in the beginning then it becomes slow. If it be represented by a curve or a graph there is a sudden fall in the beginning. Then there is a gradual flattening of the curve. The curve tends to meet the zero line but never reaches it. What is once learnt is never completely lost from memory. What seems to be absolutely forgotten, has still a value. It determines the reception of new ideas. What is known as the culture of a man is mostly made up of such ideas as seem to have been lost from memory. While teaching a lesson this fact is to be borne in mind. One should not think that if a student cannot recall something to mind, it is lost from his memory and learning has done him no good. It facilitates the learning of other things by him.

TRAINING OF MEMORY

Educationists in the past believed that memory can be improved by practice. Hence exercises were given to the students to train their memory. Students thus committed to memory pages of books not for the sake of the material contained in them but for merely improving their memory. Psychological experiments conducted in modern times, however, show that this

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kind of training has little value. Memory cannot be improved in this way. Our remembering of facts depends on two things, the power of retention which the brain possesses and the method of learning. It is now accepted nearly by all psychologists that no improvement can be made in the first by practice. As William James says, the brute retentivity is a physiological quality of the brain and this is given to an individual once for all at birth. It is an inherited quality. Hence any hope of improvement can lie only in improving the method of memorising. A boy, practised in remembering long pieces of prose or poetry or in remembering dates and facts of history, can do similar work much more easily than the one who is not so practised; for, he discovers some method of doing the work quickly. He learns to apply himself intelligently to his task, develops habits of concentrating attention, observing the matter properly, discovering relationships among facts, distinguishing the essential from the non-essential and thus does the work more quickly and efficiently than the one who has no such habit. The teacher who wants to improve the memory of his students should teach them proper methods of memorising facts rather than drill them in memory work.

Thorndike conducted many experiments to determine how much truth there is in the theory of *formal training*. According to the theory of formal training. school subjects are to be taught primarily not for the worth of the matter but for the discipline they

impart to the mind, or for the training of various mental faculties, such as, observation, memory, imagination and reasoning Thus Classics were taught to train memory and the reasoning power of the students. Thorndike showed there is no truth in this theory. The training that one receives in one subject is useful in learning another only if there are elements common to both Thus there is no real *transfer of training*. If a student has been practised in committing to memory long poems, he would improve in committing to memory only poems or pieces of prose and not multiplication tables or formulae of Chemistry. This happens because there are common elements in the first case between the material used for practice and the material later on used; on the other hand, in the latter case there are no common; elements. Hence if we want children to do a particular kind of memory work in later life, it is better to practise them in memorising only material of a similar nature.

Again efficiency of work depends very much on interest in it. However much the students may have been practised in memory work they make little progress in remembering what they do not want to remember, or what they have no interest in remembering. Hence the most important device to improve memory is to increase the interest of the students in the work they have to do

EXERCISES

1. What is memory ? What is its importance in the mental life of an individual.

2. What is the best method of learning a poem ? Why is learning with the help of recitation more efficacious than continuous learning ?
3. On what does retention depend ? Can it be improved by practice ?
4. Explain the Laws of Association. How do they help recall ?
5. What is meant by "blocking of recall" ? How can it be prevented ?
6 "Dictation has never taught and can never teach spelling"—Elucidate the statement and show what exactly is the value of dictation exercises in the school work.
7. Distinguish between recognition and recall. What is the value of each in the mental development of the child ?
8. Why do children forget lessons learnt in the detention class ? What should a teacher do if he wants to fix a lesson well in the minds of the students ?
9. What do you understand by "transfer of training" ? What is the exact value of committing poems and prose pieces to memory ?

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CHAPTER X

IMAGINATION

NATURE OF IMAGINATION

Imagination is the revival of the experience that occurred in the past and its arrangement into new patterns. The basis of both memory and imagination is past experience, but whereas in the case of memory the past experience is simply reinstated in the old manner, in the case of imagination the past experience is utilized in constructing a new structure. Memory thus can be called reproductive imagination; imagination proper, on the other hand, is productive. When I think of the scenes of the cinema film as I saw them last night, I am said to be exercising memory, but when on the basis of the old experience I construct a new story, I am using my imagination. Imagination is thus not an exact reproduction of the past experiences as memory is. The contents of the past are reproduced and combined in a new order. I have seen heads of men and bodies of horses. Imagination combines the two and I can think of a horse with a human head. "Imagination", says Woodworth, "is mental manipulation. When the individual recalls facts previously observed in reality and then proceeds to arrange them into new patterns, he is said to show imagination. A product of imagination is composed

of parts received at different times and later recalled and combined, as a centaur is composed of man and horse, and a mermaid of a woman and fish."

RELATION TO MEMORY.—We have pointed above that both memory and imagination have past experience as their basis. But whereas memory simply reinstates what happened in the past, imagination makes a new creation on its basis. Memory, moreover, involves recognition. There is a feeling of familiarity with the experience In the case of imagination it is not so. Memory always refers to the past, but imagination may refer to the future. Thus, when I am thinking of a house in which I lived five years ago I am using memory but when I think of a house that I am going to build, I am using imagination.

Imagination depends on memory. Memory is concerned with reminding past experiences. Without it imagination of a new situation is impossible. Imagination cannot create the new material; it can simply utilize what is given. Thus a man born blind cannot imagine coloured pictures. Sometimes memory involves imagination. When we think of places we visited a few weeks ago, we do not remember all that we saw; but we supply the gaps with the help of imagination and complete a picture to the mental eye which otherwise would be fragmentary.

INDIVIDUAL DIFFERENCES IN MENTAL IMAGERY

We think with the help of images. Images are

necessary to recall the past experiences, as well as to make schemes for the future. Thus both memory and imagination require the use of images. There are individual differences in mental imagery of different persons. Some can recall seen things better, others can recall things heard better. In other words, some people think of their past experience in terms of visual images, others think in terms of auditory images. Similarly motor images, touch images and olfactory images enter more or less in the mental imagery of different persons. Usually men think with the help of many kinds of images. But the visual images of a person may be clearer than his auditory images and vice versa. People who think purely in terms of visual images are called *visiles*, those who think only with the help of auditory images are called *audiles*. Similarly there may be *motiles*, and *tactiles*. The normal individual makes use of all kinds of images. Hence to make an impression indelible, it must be conveyed through different senses. Children will remember spellings better, if they are taught through the eye, the ear and the sense of touch rather than when only one sense is used. To fix a new word in the mind of the boys, the teacher should pronounce it aloud; the word should be uttered by the boys; it should be written on the black board, and copied down by the boys in their note-books Thus when one kind of memory fails, the student can yet remember the word with the help of other images.

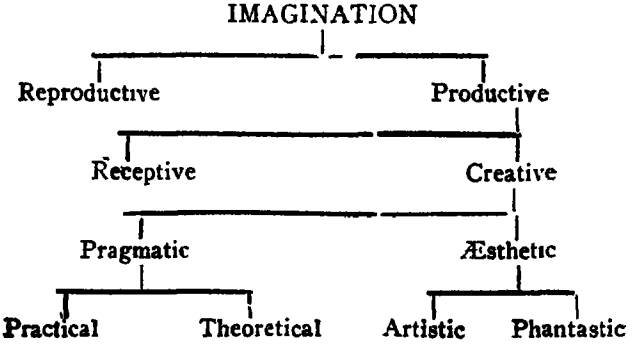
Children as a rule have better visual imagery than adults. Hence while teaching them appeal should be

made to visual experiences. Things presented to the eye are better remembered by them than those heard. The imagery of children is also very lively. This sometimes leads them to mistake things imagined for things actually seen. This is a source of many lies of children.

Children's power of thinking with the help of words is very limited. Thinking in terms of words requires a degree of abstraction of which children are not capable. When we utter a word before a child, the corresponding visual picture of the object denoted by the word comes up to his mind. The word has no meaning unless this picture is visualised. But this takes time. Hence children are slow in thought. While speaking to children one must speak slowly and distinctly. It is only after much experience that the mind adopts the short-circuit movement of substituting words for visual or other kinds of imagery.

CLASSIFICATION OF IMAGINATION

Imagination has been classified by different writers in different ways. Below is given one kind of classification.



Here the word imagination is used for calling up mental pictures in the absence of the object. Some writers use for this kind of general experience the word "ideal representation." When the ideal representation is of a purely reproductive type, it is called memory; when it is productive, it is called "imagination" proper. In other words an imagination is productive. Now this productive imagination is said to be receptive or imitative when the imaginative activity follows the lead of another person. Thus when a child is hearing a story told by his grandmother, he calls up mental pictures to understand the story. His imaginative activity is not original; it is directed by another person's mind. Such imagination is called *receptive* imagination. When the child constructs his own story or thinks of purchasing several articles in a fair, his imagination is *creative*. It is original. Creative imagination is called pragmatic when the ends to which the imaginative activity is directed is the accomplishment of some thing in the real world. The scheme for visiting a new place or solving an arithmetical problem are examples of pragmatic imagination. This type of imagination is controlled by the world of reality and its laws. Æsthetic imagination, on the other hand, is relatively free. The imagination of the poet, imagining the clouds as carrying a message of a lady to her lover, is an illustration in point. In the poetic imagination, there are still some rules which guide the artistic creation; when no rules are followed, when imagination is absolutely free, as in day-dreaming, it is said to be phantastic.

TRAINING CHILDREN'S IMAGINATION

MADAM MONTESSORI'S VIEWS.—There is a controversy among educationists as to whether or not children's imagination should be developed. According to Madam Montessori, children have too much of imagination and their imagination requires to be controlled rather than developed. To encourage them in their imagination is to cut them off from reality. Such children miserably fail when they have to face hard realities of life. Hence, Madam Montessori discourages telling stories to children. Stories of birds, animals, and giants in which children delight do them no real good. If education is a preparation for life these stories instead of helping, hinder in the achievement of that aim.

There are many educationists who think these contentions of Madam Montessori as unsound. If we cut off the child from his life of imagination we cut him off from all that is of joy to him. The life of the child is full of hardships, but his imagination helps him to ignore the hardships and live a blissful existence. As Stevenson points out, he eats the cold mutton with the grandeur of a king; his craddle is the fairy boat carrying him to the land of eternal merry-making. Most of the plays of children involve the use of imagination. If the imaginative part from children's plays is taken away, the play will cease to be a joyful activity. It would no more expand his life or develop originality and spontaneity in him. The

new types of plays with wooden apparatus, that Madam Montessori has devised, are not a proper substitute for the ordinary imaginative games of children. It is feared that they will make the life of the child wooden. William Stern has questioned the value of the games with "the didactic apparatus" in expanding the life of the child. The criticism of Stern seems to suggest that Montessori has altogether eliminated the principle of play from the education of the child. In this respect the Kindergarten method of Froebel is much superior to the Montessori method. The Kindergarten method advocates the telling of stories to children; it encourages games of personation, and in a thousand ways develops the imagination and self-activity of the child. We think that the Kindergarten method is psychologically more sound. Though it is true that the child has to live in a world ruled by scientific laws, he need not be made aware of this fact too early. His mind is not ripe for scientific knowledge. Before it becomes ready to receive it, it has to pass through the stage of imagination and makebelieve. As T. P. Nunn points out, the makebelieve of the child is not an indication of the decay of his personality; it is rather an indication of its growth.

METHODS OF TRAINING IMAGINATION.—We can train the imagination of the child through stories. In the beginning children will hear stories. This will develop their receptive imagination. Then they will recite the stories heard by them or make their own stories. This will develop their creative imagination.

Dramatisation of stories also develops creative imagination. Great works of art have their roots in such small performances of children.

In the games of children their constructive imagination is developed. Scouting has proved very helpful in this respect. The scouts have to make schemes of their excursions, distribute duties to each member and to anticipate various difficulties that they might meet on the way. All this trains the constructive imagination of the child.

The imagination of the child can be trained through the ordinary school-work also. Literature thus develops the æsthetic imagination of the child. Scientific imagination or pragmatic imagination of a theoretical kind can be developed through teaching science by the heuristic method. This method requires the child to think out, under the guidance of the teacher or independently the causes of the phenomena he is studying. Practical imagination, in its various forms is developed by the project method. In this method the child faces a problem and studies the method of solving it in a natural setting.

Exercises

1. In what sense is imagination a reproduction of past experiences? What is its exact relation with memory?
2. What are the special characteristics of the imagery of children? How should a teacher handle a class keeping in view the nature of children's imagery?

3. Classify imagination. Show how the different kinds of imagination can be developed in children.
4. Discuss the view which says that the imagination of children should not be developed.
5. Suppose you have to teach a new word to a child; how would you proceed to ensure its permanence in their memory. Give reasons.
6. "The child's makebelieve is a phenomenon of expansion or growth"—Elucidate.
7. What is the value of telling stories to children? What kind of stories do infants like most? Why?
8. "There can be no castles on earth without castles in the air."—comment on the statement so as to bring out the value of imagination in the life of an individual.
9. What is the difference between a poet's imagination and the imagination of a day-dreamer? Which kind of imagination do we find in children more? How can we prevent the child from indulging in day-dreaming.

References:—

1. T. P. Nunn, *Education, Its Data and First Principles.*
2. Stern: *Psychology of Early Childhood.*
3. Norsworthy and Whitley: *Psychology of Childhood.*
4. Dumville: *Fundamentals of Psychology.*

Chapter XI

THINKING

NATURE OF THINKING

Elements of Thinking.—Thinking is an activity of the mind in which past experience is made use of to solve a problem. In thinking we attentively analyse and arrive at an interpretation of an object or situation which faces us or which we anticipate and we map out a course of action with reference to it. Thus thinking is an activity of the mind in which we are aware of the purpose and are mentally striving hard to achieve the purpose. Woodworth has given the following five elements of the process of thinking:—

(i) Orientation towards a goal.
(ii) Exploratory movement to reach the goal.
(iii) Recall of the previously observed facts.
(iv) Grouping of the facts into new patterns.
(v) Inner speech and gestures.

Let us take an example to see how the above elements are involved. Suppose, a student goes away from his room without locking it and on his return finds that two of his books that were lying on the table have been taken away by some one. He thinks as to who should have taken them away. He thinks of asking his neighbours if any one came to his room, but he does not do so as he is reminded that they were also away. Then he thinks if some one of his friends

needed the books. Incidentally, he is reminded that a certain friend had asked him to lend one of the books and that he had consented to do so. He thinks of approaching the friend, but he says to himself that the friend could not have taken two books. Then he thinks, perhaps another person has removed the books for teaching him a lesson. He is reminded that the gentleman did a similar thing on a previous occasion. Thus he is satisfied for the moment. He reaches the solution of the problem.

Here the problem that initiated the thinking activity was finding the cause of the removal of the books. It was followed by many exploratory thought movements; relevant facts of previous experience were recalled and a theory constructed that satisfied the case in hand. During all this time inner speech was going on. Thinking is *trial and error* method of arriving at the solution of a problem carried on with the help of ideas instead of actual bodily movements.

Thinking is an analytico-synthetic activity of the mind. When a person is faced with a new situation, its various features are analysed and discriminated. Then those elements that are common between this new experience and some old experience are apprehended, and an inference is arrived at on the basis of the past experience. I find that a boat is overloaded; I know this from certain signs that the boat shows. I am reminded of what happens to overloaded boats, hence I fear that it may sink. The thought movement here is analytico-synthetic. The analysis was carried

on while I was recognising the essential features, and the synthesis was done when the old experience was applied to the present case.

LEVELS OF THINKING.—When the word "thinking" is used in Psychology we generally mean conceptual thinking. Some writers, however, have recognised thinking as having different levels. Thus thinking may be perceptual, imaginative of conceptual. *Perceptual thinking* is guided by actual sense stimulus. This is to be found in animals. *Imaginative thinking* is done with the help of images Man alone can do this kind of thinking. Animals are not capable of having images. Hence they cannot think in terms of images. The highest kind of thinking is *conceptual.* In this only concepts are used. It is carried on mainly with the help of words that stand for concepts.

Thinking is sometimes classified as "associative thinking" and "conceptual thinking.' Associative thinking is carried with the help of images, whereas conceptual thinking is carried on in terms of concepts. In associative thinking the previous associations between images are recalled, in conceptual thinking the concepts are analysed to see if there are common elements between two concepts. It may be the discovery of a new meaning in the old concept, that is, the application of a concept to a new situation; it may be formulation of a concept to cover many concrete cases

CONCEPTION

NATURE OF A CONCEPT:—A concept is a *general*

idea designated by a word. The word stands for a class of objects. The formation of concepts is a complex mental process, of which only developed minds are capable. The following mental processes are involved in forming a concept :—

(i) Observation of several individual objects.
(ii) Analysis of the component qualities of each.
(iii) Comparison of the qualities.
(iv) Mental unification of similar qualities.
(v) Naming the unified qualities.

A child sees many such animals as cats, dogs and goats. The child notes the several qualities of each different kinds of animals. Suppose, it has the concept of the cat and the dog already and it has to form the concept of the goat. When the child for the first time sees a dog he notes the various qualities of the animal. He finds that there are striking points of similarity between this new animal and the dog, and there are striking differences between it and the cat. He classifies the new object in the dog category and calls it a dog. As a matter of fact, a child seeing a kid for the first time called it *tutu* (dog). But as the child comes across more goats, he finds that there are striking points of difference between dogs and the new animals though there are many points of similarity among the new animals themselves. All dogs bark at the approach of strangers but the goats do not bark The bleating sound of goats is also different from the barking of the dogs. The goats eat grass, the dogs do not do so. Similarly other points of similarity between the different goats

are noted; at the same time the child notes the points of difference between the dogs and the goats. Now the child has the idea of a new animal. This idea requires to be named by a new word. It asks for a name and usually the adults supply the name.

Here we see, to have the concept of the goat the child had *to observe* many goats with a view to find out what common qualities there are among the goats themselves and in what qualities they differ from each other as well as from animals of another class. The child had *to analyse* the various qualities of the animals. Then he made comparison of the qualities of the animals of the same class and contrasted them with qualities possessed by animals of a different class. He finds that there are ample common qualities among the new class of animal and those qualities are to be found in no other animal; hence the qualities are *mentally united*. They require to be *designated by a new name* and accordingly a name is given.

The above account of the formation of concepts should not lead us to suppose that one always sets out deliberately and consciously to do such a task. As outlined above, the task seems to be very arduous. But in actual practice it is not so. Just as the actual process of assimilating food is not a difficult one, though an account of the process would make it seem very difficult, so too it is the case in the formation of concepts. We have given an analysis of what actually occurs very quickly and rather imperceptively.

Conception is an analytico-synthetic activity of the mind. This is evident from the above account of the actual formation of a new concept; observation, analysis and comparison of qualities was followed by a synthesis of them, that is, by the processes named mental unification and naming. As a matter of fact, the analytico-synthetic activity is fundamental to all thinking; conception, being a kind of thinking, also involves analysis and synthesis of experience.

Concepts are sometimes classified as *concrete concepts* and *abstract concepts*. Concrete concepts stand for classes of things, abstract concepts stand for qualities. An abstract concept may stand for a single quality, such as, greenness or yellowness or it may stand for a number of qualities, such as, virtue, manliness. Thus, an abstract concept may be simple or complex.

RELATION OF CONCEPT IS WITH WORDS.—There is a very intimate relation between concepts and words. Many psychologists hold the view that one cannot have a concept. without the corresponding word to name the concept. According to Max Muller there is identity between thought and speech. "Speech is thought," says he, "and thought speech". There can be no thought without speech. William James who does not hold such an extreme view, still emphasises the importance of words in the growth of concepts. The word stabilises the concept and makes it available for future use. If there be no word to name an idea the latter would not come to the mind, and even if it

came some how to the mind, it would not stay there. William James says, "Nation who have no names for particular virtues do not possess the virtues". This statement shows the importance of words in the growth of concepts.

GROWTH OF CONCEPTS.—The growth of the number of concepts is determined by the growth of experience on the one hand, and increase in the size of the vocabulary on the other. As the experience of an individual grows, he comes across with many objects dissimilar from those he observed before, he comes across ideas not known to him before. Along with the expansion of experience he also learns new names. As a matter of fact, the growth of the language goes on apace with the growth of ideas. Hence we ean accurately judge the intellectual development of a person by the size of his vocabulary. Backward races have very few words to express their thoughts; civilized ones have many. Similarly, the intelligent child has a large stock of words at his command, as is seen by his fluency in speech; the backward child, on the other hand, gasps for words. This is evident from his slowness in speech. The lack of words, in fact, is due to lack of thought, and the mastery of language is indicative of possession of thought. Thus persons who speak a language fluently are generally more intelligent than those who fumble of gasp for words.

A given concept grows either by increase in its connotation or in its denotation. As our experience grows we may learn that a particular word has

meaning that we did not know before. Thus a person may have known that "Nazism" is the doctrine of racial superiority. But later, he might learn that "Nazism" is a kind of socialism. The meaning of the concept has thus become more definite. This is growth of the concept by increase in its connotation. A concept may grow by increase in its denotation also, that is, by increase in the number of cases which the concept stands for. Thus we know that German people are called "Nazis"; later on we might learn that people of other nations may also be Nazis. In the beginning, to the child the word "dog" stands for the familiar street dog which sometimes visits the house, but later on, it begins to stand for the terrier, the greyhound, the bulldog etc. Here the denotation of the term has expanded. Thus the concept has grown.

TEACHING OF CONCEPTS

IMPORTANCE OF TEACHING CONCEPTS.—To impart new concepts to the child is one of the chief aims of education. "The process of education," says William James, "taken in a large way, may be described as nothing but the process of acquiring ideas or conceptions, the best educated mind being the mind which has the largest stock of them, ready to meet the largest possible variety of the emergencies of life. The lack of education means only the failure to have acquired them, and the consequent liability to be floored and rattled in the vicissitudes of experience." * Concepts are necessary both for the development of intelligence as

* *Talks to Teachers.* P. 146.

well as character. All intellectual growth means growth of concepts and their proper use. The development of character also is determined by concepts, in as much as, an individual is not likely to adopt a particular course of action, however good or noble it may be, unless ideas about it exist in his mind.

THE METHOD OF TEACHING CONCEPTS.—in teaching concepts the teacher has to refer to the actual experience of the child. Where the corresponding experience does not exist the teacher should first lead the child to have the experience. Then there is the manipulation of the experience. This consists in its analysis and synthesis. The process has been already outlined before. the teacher has simply to help in the process by a set well-directed questions. Then he has to supply a name.

The teaching of concepts must not be mistaken for teaching of words. This is very often done by young teachers. When a new word occurs in a text, the teacher gives meaning of it in terms of some other words. He. at times, gives ready made definitions of a concept. The students thus become learned without growing in intelligence. If we want a child to have a real knowledge of concepts we must not hasten. We must proceed slowly. We have to *proceed from the concrete to the abstract.* The child has a mastery of only those concepts which he acquires by his own mental effort. The teacher has simply to guide the mental activity of the child. Thus if the teacher has to teach the concept of "porosity" to children, he

should show them objects that are porous and those that are not porous. The children are to be led to analyse the qualities of each class of objects and compare them. They are thus to be led to observe a peculiar quality in some of the substances, namely, "porosity." When the students have noted this common quality well, a name is to be supplied.

In early childhood, mental analysis should be accompanied by actual manipulation with the hand. During seven or eight years of age children are interested in sensible properties of objects. The constructive instinct is most active in this period. The child is ever manipulating different objects, putting them together and taking apart. The teacher is to utilize this instinct in the growth of the child's concepts. This is done in Object-lessons, Nature-study, Manual training and Drawing. The chief aim of such lessons is not to impart physical dexterity to boys or to make them nice workmen but to make their concepts clear and well-defined. The lessons named above bring the child in actual touch with the concrete. A person whose ideas are thus based on the concrete is always at home with the world.

The doctrine, "proceed from the concrete to the abstract", must not be supposed to mean that we should lead the child to the concrete even when he has got the abstract concept. The child should not remain too long in the concrete. He must *proceed*; when too much fetish of the concrete is made, the result is not intellectual development, but intellectual retarda-

tion. Sometimes teachers unnecessarily introduce the concrete to make their lessons look impressive. Pictures and epidiscopes are used where none are needed. Such devices bring intellectual laziness among children. They get into the habit of always looking for something sensational. It is not education but the very negation of it. If a lesson does not lead to the growth of new ideas in the mind of the child, it cannot be said to have benefited him.

JUDGMENT

NATURE OF JUDGMENT.—When concepts are referred to each other in thought, the product is a judgment. It is a mental process in which two or more ideas are compared to each other. Relationships between two things, or between a thing and a quality or between two qualities are established by the process of judgment. Thus when I say, "Dog is an animal" relationship between two classes of things is established; when I make the judgment "Ice is cold", relationship between a thing and a quality is established, and when I make the statement, "Heat is unpleasant", or "Honesty is the best policy", relationship between two qualities is established. A judgment is a unit of thought. Though elements, of which a judgment is made, are concepts, they are not psychologically prior to it. A concept is the result of a series of judgments. The child from the earliest time begins making such judgments as, this is a cat, that is a dog. When the child says "a cat", it really means, "it is a cat".

"the cat is coming", etc. The word stands for some judgment.

The concepts of a child grow as he is required to use them in judgments. They become definite and clear. When a child is required to describe an object, he has to make many judgments about it. The various qualities are thus analysed and apprehended by the child. It is the duty of the teacher to see that the child makes use of his concepts in judgments. He should also enable them to frame new judgments.

The judgments may be analytic or synthetic. The analytic judgment explains the meaning which the concept has already acquired. A synthetic judgment, on the other hand, brings new information, or adds to the meaning of the concept. Thus, "honest men are truthful" is an analytic judgment: whereas the judgment, "honest people prosper in life" is synthetic. The former class of judgments does not require verification in actual world. Children should be led to make both kinds of judgments.

REASONING

NATURE OF REASONING.—The highest type of thinking is reasoning. It is carried on through judgments or propositions. A proposition is a judgment, expressed in speech. When the truth of a new proposition is deduced from the truth of the known propositions, by discovering the various implications of the latter, the process is called reasoning. In Logic, the known propositions are called premises and the

deduced proposition is called an inference. Thus reasoning begins with a proposition and ends in a proposition. Reasoning is directed to the solution of a problem. The activity begins with a problem and ends in the solution of a problem, which may be practical or intellectual. This may be illustrated by an example.

A man hears a great noise at distance and wonders what it is. There are many possibilities. A play might be going on, a marriage procession might be coming, or a riot might have broken. He now carefully analyses the nature of the noise. He finds that the noise is steady and does not become more or less. That shows it is not the noise of a marriage procession; for in the noise created by marriage processions there is no steadiness. Similarly, he examines other possibilities; he tries to gather more information. He consults his memory. In the end he comes to the conclusion, that it is the noise of workers of a mill, who are making a demonstration of their discontent. The other possibilities are eliminated. The conclusion is based on a similar experience that had occurred before. The previously known truths are here made use of in understanding a new situation or arriving at a new truth or inference.

TYPES OF REASONING.—Reasoning consists either in the application of a known general truth to a particular case or in discovering a new truth from observed facts. In logic the former type is called *deductive* and the latter is called *inductive*. Let us illustrate each with examples.

It is a known truth that students who are weak in language are weak in history; we find a student weak in language and infer that he must be weak in history also. Of course, as actually occurring in the mind, the process of reasoning has not the above sequence. Reasoning as an actual mental event will begin with a problem, say the problem is: how a particular student will progress if he takes up history, as one of his subjects of study. To get to the solution of the problem one's past experience will be ransacked. During this process, one might hit upon the clue, namely, the weakness of the student in language. This clue is the middle term which leads to the solution: for it is known by the reasoner that students weak in language are weak in history also.

The above example illustrates *deductive type* of reasoning The actual difficulties of such reasoning consist in finding out the clue or the middle term. To get the clue the situation has to be very carefully analysed. Any mistake in analysis may bring a wrong solution. The reasoner must know what general propositions are applicable. This depends on a careful analysis of the case. A careful analysis of the case is thus half way in solving the problem. Very often the solution of the problem comes during the process of analysis itself.

In geometrical reasoning what is most important is to analyse the problem well. While teaching boys a lesson in geometry this is to be borne in mind. The students have to be taught how to analyse a problem

rather than how to apply known propositions to solve the problem. But analysis is not enough. Analysis is always done with a view to arrive at a solution. All the relevant known knowledge is called to memory. What will not help the solution is rejected at once. Thus after much rejection the clue is reached which leads to the solution of the problem.

Most teachers do not realise the importance of the trial and error process involved in searching out the clue. They usually suggest the clue. Where the clue is suggested, there is no training in reasoning. No mental effort has been made. If the reasoner does not himself make the mental effort, he gains little. The type of reasoning that we usually find done by boys in the classroom is imitative rather than original. It is simply a reproduction of the mental activity that has been gone through by another person.

The second type of reasoning is *inductive*. This consists in arriving at a general proposition from known cases. Its aim is to add a truth to one's knowledge. Of course, the enquiry is always initiated by a problem, *i.e*, the aim is practical (taken in a broad sense). Suppose, the child sees a rainbow and wonders what it is. He asks the question to his mother. He gets the answer, it is the bow of god Indra. He is usually satisfied and asks no further question. But a child with a maturer mind will not be satisfied with this. He will push the enquiry further. He may recollect that he saw similar colours when he was looking through a prism. He tries to find out something

common between the two. He analyses facts one by one. He may find nothing. Here he needs the teacher's help. Under his guidance a hypothesis may be framed. He frames the hypothesis that it is light itself which has somehow caused the seven colours. He performs some experiments. These experiments show that the white ray when passing through a prism splits itself in seven colours. This leads him to the general proposition that the white ray consists of seven colours. This proposition may be verified by more experiments or new cases. It may be verified in another way. The seven colours may be mixed in the proportion in which they are found in a prism. If the result is the production of whiteness then there may be left no room for doubt. The rotating disc of seven colours is thus used to verify the truth of the proposition that the white ray consists of seven colours.

Here we mark five stages of reaching the truth:

(i) Initiation of a problem.

(ii) Collection of the data: their analysis and classification.

(iii) Framing of the hypothesis.

(iv) Verification of the hypothesis.

(v) Arriving at a law.

The main difficulty of inductive reasoning lies in the collection of the data and their analysis and classification. What actual data are, the reasoner does not know. The collection of the data depends to a great extent on the hypothesis, the reasoner has in mind, and this depends on his insight. Thus the collec-

tion of the proper data is the most important step in arriving at the solution of the problem.

The teacher has to train the students in collecting, classifying and analysing the data. The *heuristic method* of teaching aims to train students in independent reasoning. Here, the student is encouraged to find out the solution of the problem for himself. But there are limits to this. The student cannot be wholly in the position of the original discoverer. Neither has he the time to discover all truths for himself, nor the ability. What is expected of him is to think out a few steps of the reasoning process. Much of the inductive reasoning in the classroom is, as a matter of fact, imitative and it has necessarily to be so.

We must not, however, think that we cannot train students in inductive reasoning. A lesson in science and a lesson in grammar aim to do it. In a lesson in grammar, the teacher takes a large number of sentences as actually spoken by students. They are then classified as they involve or do not involve a particular rule *i. e.*, according to some similarity in them. The students are led to see the rule working in them. This rule is inferred. The rule is fixed in mind by further application.

Similarly in a lesson in science, a law may be inferred from particular cases. The students are familiar with expansion of metals, as seen in railways. They are initiated with a problem. A hypothesis is framed It is during the hot days only that the rails expand; hence heat may be the cause. Experiments

are performed to see it. The students note the results. Thus they arrive at the law that heat expands solids. This may be further verified by an appeal to experience.

EXERCISES

1. Analyse thinking as a mental process. What are its different levels ?
2. Distinguish between associative thinking and conceptual thinking. What kind of thinking do we find in children more ? Why.
3. What is a concept ? How is it formed ? Illustrate your answer with suitable examples.
4. What is the importance of words in the growth of concepts ? What should a teacher do to increase the concepts of the child ?
5. "Proceed from the concrete to the abstract" Explain and discuss
6. By a concrete example show how a concept may be taught to a child. What should be done to secure the permanence of the concept in the mind of the child ?
7. What is a judgment ? How is it related to concepts ? Why is it necessary to require children to give description of objects seen by them or ideas they have in their minds ?
8. What are the steps of the process of reasoning ? Illustrate your answer with examples.
9. Distinguish between *deductive* and *inductive* reason-

ing. What are the main difficulties in each type of reasoning.

10 How can the children be trained in reasoning. Illustrate your answer by taking an example from a lesson in geometry or a lesson in science.

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CHAPTER XII

WILL AND CHARACTER

NATURE OF WILL

MEANING OF WILL.—Will is a word which is used quite frequently in common speech. We often hear such statements as, "Washington was a man of strong will", "A coward is a person of weak will". When the word "will" is used in such statements, it stands for a significant idea. It is, however, difficult to define the idea. Psychologists have not come to agreement as to the exact connotation of the word will. According to some, will is the very soul of the man and the term "free-will" is used to mean soul. According to others, will is "the sum total of all our impulses towards activity", or it is "the whole man active". In the latter concept of will all the various impulses of the man are included. Will is not something over and above these impulses but just an aggregate of them. This view of the nature of will is in direct contrast with the view which states that there is a "free will" that governs the impulses of man. The nature of the will, however, can best be understood by what the will does. Hence let us turn to the functions of will.

FUNCTIONS OF WILL.—We can easily recognise two functions of will. They are:—

(1) Deciding the course of action when we are confronted with many alternatives.

(2) Controlling the impulses and directing them to rational ends.

We become aware of will in us whenever we have to decide between two or more alternative courses of action. Here it would be advantageous to know the various elements of a voluntary action or an action directed by will.

Analysis of Voluntary Action.—A voluntary action may be analysed as follows:—

(1) The rise of an impulse in the mind.

(2) Conversion of the impulse into desire.

(3) Conflict of desires or motives.

(4) Deliberation.

(5) Decision.

(6) Action.

It is always a consciousness of want or a rise *of an impulse* that initiates mental activity. The feeling of want may be due to some instinctive craving or due to some intellectual, moral or aesthetic need. Man is prompted to action for the satisfaction of a want, the consciousness of which is always disagreeable.

When this consciousness of want is viewed in relation to the nature of the self it becomes *a desire*. An appetite is blind, a desire, on the other hand, is enlightened by self-consciousness. In desire the idea of the end is present and this end is recognised as good. There is also a knowledge of the means. Animals are not capable of having desires. All their

actions are impulsive as they have their origin in instincts. Most of children's actions are also impulsive, but as the self of a man grows, he no longer acts from impulses but from motives, that is, he always has a clear consciousness of the end that he is going to realize.

The third stage of the voluntary action is the *conflict of desires* or motives. This occurs when a desire comes in conflict with another desire, incompatible with the first We cannot satisfy all our desires. One cannot sit for study and go out for a walk at the same time. Both are desirable ends, but the satisfaction of one means renouncing the satisfaction of the other. In such a situation, the two desires are pulling against each other.

The above state of affairs is followed by *deliberation*. In deliberation there is arrest of action. The self judges the merits and demerits of each one of the motive. The pros and cons of the different courses of action are considered. Each one of the alternatives is mentally seen how it would affect the self of the man. The process of elimination takes place in order to choose one course of action and reject others.

The state of deliberation is very painful. The man is in a mental seesaw. He is feeling the push and pull of different desires. Much of his energy is thus lost. It is, however, a very necessary stage. One who does not deliberate, is a thoughtless person. But one who keeps on deliberating too long is not a successful man in the world.

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Deliberation ends when *decision* emerges. In decision choice of one of the motives is made. With this motive the self identifies itself. The other motives then disappear or keep on lingering but with little power.

Now the question arises: how does deliberation end? Between the conflicting motives, who makes the choice? One wiew is that the choice is always made in accordance with the strongest motive; there is nothing which makes a choice among motives. The *strongest motive wins* whenever there is a tug of war between motives. This fact itself is called decision. Another view is, there is a free will that chooses between the conflicting motives. The choice is done by the *fiat of the free will.* This free will is itself indeterminate. It is not determined by what it did in the past. The third view is that the decision is made by the self that is *by one's character.* The man deliberating considers whether a particular course of action is in accordance with his character or not. He sees whether it will or will not satisfy his social, spiritual, as well as his material self. A rational action always involves such a consideration.

Decision is followed by *action.* Here it is the kineasthetic impression of the past that plays an important part. A man is prone to do as he has done before. If a man is not habituated to a life of action, the state of indecision keeps on for a long time and often his decision does not emerge in action.

DETERMINING TENDENCIES:—In reaching a decision the will is determined by a number of conscious

and unconscious factors. Besides the *impulses of moment*, the factors are *the ideas and ideals* of the man, some of which are concious and others are unconscious. Then there are his *habits*, and *sentiments* and *other impulses*. All these in one way or the other affect the decision of the moment. It is these that make up the character of the man or his total personality. *Will is nothing but character in action* A man may understand that a particular course of action is generally good but he may decide that for him it is not good; for it may not be in consonance with his ideals of life or his present needs and circumstances. Again, a man may decide that he ought to act in a particular way, but he may not be able to act up to his own ideals, for lack of proper sentiments or habits of action Thus to fashion the will of a man, one has to fashion his character.

WEAKNESS OF WILL

We may classify weakness of will into two main kinds: (i) Impulsiveness, (ii) Indecision.

There are some persons who without considering the pros and cons of the situation come to decision. The impulse of the moment initiates action. In the case of children, we amply find this. *Impulsiveness* is due to *lack of habit of thinking* or education in self-government. Impulsive people do not exercise a rational control over their desires. Such persons have often to repent for their actions. As a person's experience grows, sentiments and ideas develop in his mind. His

impulses then are better governed. He acquires the ability to inhibit the impulses of the moment. In enabling the individual to have a perfect control over his impulses lies the education of will. Impulsiveness is overcome by deliberately postponing the satisfaction of the impulse. Let a child have what he wants but not just when he wants The child has to be taught to control himself. As proper sentiments develop and as the habit of postponing the gratification develops, he would lose impulsiveness.

Another form of weakness of will is *indecision* This is due to lack of habit of action. One who keeps on deliberating too long exhausts his energy in mere thinking Such a person is incapable of effectual action. Just as impulsiveness is indicative of immaturity of character, so indecision is indicative of its malformation Where contemplation and action are not properly balanced in life, the result is a habit of indecision. People with very high ideals and small achievements are of this nature Habit is a great factor in determining the will of a man. One is prone to do what he is used to. The kinaesthetic impressions that an action leaves, enable one to act with ease a second time In order that child may not contract the habit of indecision, he should from the very start be made to live a life of action.

Besides the above two forms of weakness which are normal, there are certain abnormal forms of weakness. Such weakness may be classed as *pathological.*

We may note here two forms of it, namely obstinacy and aboulia.

Obstinacy is a kind of impulsiveness. It is impulisveness of a pathological order. A child insists on doing a certain thing, however much he may be prevented from it Threats and punishment do not avail here. Obstinacy is a kind of fixation which the child himself cannot get rid of. This is due to the presence of some strong impulse in the mind of the child. The impulse originates from a complex, i. e. an undesirable sentiment; hence it cannot be treated in the ordinary way. The ordinary impulses can be inhibited by punishment: it is not so in the case of impulses having their origin in a complex. The treatment for such cases is often just the reverse of the one we meet out for ordinary cases. The obstinate child instead of being chastised is to be treated with sympathy. Obstinacy originates from harsh treatment received by the child. The continuance of such a treatment simply aggravates the disease. It is by an expression of sympathy only that we can hope to dissolve the complex which is at the root of obstinacy.

Aboulia is an extreme form of indicision of will. The patient cannot decide anything. Someone else has to decide for him. He has to be pushed into even the behaviour of dressing for breakfast. There is no good in rebuking or giving advice to such a person. He should be led to act He should be allowed to act whichever way his interests take him

A milder form of this disease is *fickle-mindedness.*

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The man changes his mind so often that his life becomes a burden to him. This is often due to the presence of some complex. A good case of it, cited by Morgan, is given below.

"A young gentleman suddenly began to suffer from self-reproach He suffered in very trivial matters. One day he went into a store to buy a straw hat. He selected one that suited his fancy, put it on and left the store. Hardly was he outside the door when the thought came upon him, "You ought not to have bought that hat". Absurd as it may seem, the sense of having done wrong which he experienced was of very great intensity. He continued on his way, arguing with himself to the effect that his feeling was absurd, that he had done nothing wrong, yet all the while the sense of self-reproach remained. Finally his distress was so great that he turned and began to retrace his steps towards the store, intending to exchange the hat for another one. On the way he was assailed with new doubts, for he kept thinking "May be, it would be better if I kept this hat. May be, I am making a mistake if I take it back". By the time he had reached the store, he had decided that it would be better to keep the hat, so he started for home again with his purchase still on his head. Before he had gone very far, the first sense of guilt had again assailed him and finally he did return to the store and, exchanging the hat for another, felt considerably, if not entirely relieved He went through a similar performance on another occasion when he had gone to his bank to get a new cheque book..."*

*Morgan: *The Psychology of the Unadjusted School Child*, P. 131, 132.

The abnormal behaviour of the young man was due to the presence of a complex in his mind. He had been disappointed in love and he had harboured ill feelings against the lady who had caused the disappointment. These feelings were combined with other undesirable feelings present in his mind. These were feelings of hostility against his father who used to punish him in childhood. His moral self, however, rebuked him for entertaining such evil feelings, Hence, a complex was formed. He became over-cautious about his own conduct He feared doing wrong to some one. This manifested itself in the fickleness of mind, described above.

NATURE OF CHARACTER

Character is often defined as a completely fashioned will. When an action is repeated again and again, it creates a habit in one's mind. Character is a habit of willing. He whose actions are guided by forethought and reason, develops a well-organised rational character, whereas one, in whose life impulsive actions predominate, develops an ill-organised character, which, in other words, means no character According to ethical writers there is character in a man to the extent to which there is the power of self determination and self control in him.

CHARACTER IN RELATION TO WILL.—Character and will are mutually determined by each other. A good character naturally expresses itself in good conduct, *i.e.*, rational acts of will. Similarly good con-

duct produces good character. Character is an abiding structure of the mind, whereas will is that which acts. Character is created by will. But the will in turn is determined by character *i.e.*, by previous willing.

There are some psychologists who do not believe in the doctrine of free will or a will over and above character. According to them, character is not a creation of will in the sense as a building is a creation of an artist. Character is the man himself and will is only a functiou of character. The determination of the character by will simply means determination of the self by the self. Character and will are names of the same thing. It is the man himself who acts When we view him as an enduring personality, we speak of character; when we view him as an active being, we speak of will.

RELATION WITH SENTIMENTS.—A sentiment is an enduring structure of the mind, as character is. According to McDougall, character is simply an organisation of sentiments. There are various sentiments in the mind of a man, such as sentiments for material possessions, sentiments for relatives and friends, sentiments for ideas and ideals. These sentiments are organised under the dominant sentiment of self-regard. This sentiment is at the root of self-respect and the development of moral ideas. It develops very gradually, and in its development lies the growth of character.

McDougall here views a sentiment, not simply as habit of feeling towards a particular object, which is the usual meaning of the word. but as conative-affective

structure. It is, in other words, a habit both of feeling and of action. A sentiment is associated with an idea; hence all the three aspects of the mind, viz., cognition, affection and conation, are equally comprehended in the concept of sentiment. Thus an organisation of sentiments would naturally mean organisation of character.

But whatever meaning we may attach to the word sentiment, it cannot be gainsaid that a man with noble sentiments can be better trusted than a man with keen intelligence and high ideals of life but lacking in the corresponding noble sentiments. If a person has not well-developed sentiments for worthy objects, he has nothing to check him from immorality and vice. As Cyril Burt points out, sentiments act as a break and a briddle, without which a man would go headlong into all kinds of sensuous gratifications. Hence those who aim at building character in the child have to aim at developing healthy sentiments in him.

CHARACTER IN RELATION TO IDEAS AND IDEALS — Though we are taking up last the place of ideas and ideals in character, it is not the least important. Character consists in a rational control of one's impulses. It is only when ideas and ideals of a man develop that this rational control is made possible. It is for this reason that Socrates said, "Knowledge is virtue." He meant by that saying, that if a man knows what is right, he will do the right. We may not fully agree with Socrates in the proposition that the knowledge of right actions creates those action, but it cannot be gainsaid that

a man will not do what is right and avoid doing what is wrong, unless he has a knowledge of the right and the wrong. There is great truth in the saying of Herbart, "A stupid person cannot be virtuous." A stupid man may do a good act, but unless he knows that the act is good and is moved to do it because it is good, he cannot be said to have acquired a merit by doing the act. It is the motive and not the overt act that is judged when we judge the conduct of a man or his character. What the man does not know, cannot be a motive of his action. A man who khows only two ways of spending his leisure time, namely, going to play tennis and reading newspaper, cannot be expected to take part in a literary debate. Such a person is naturally gravitated to sense indulgence or to indolence when his two favourite occupations of leisure be not available to him. Hence the more we develop ideas in the mind of an individual, the more we make him immune from vicious temptations and so the more we increase the worth of his life.

The development of ideas in another way indirectly affects character. There is an inverse relation between intellectual occupation and a life of emotions. Emotions can be controlled by keeping the mind engaged in thought. Their force is thus weakened and they can be easily directed to worthy ends. When they are not so directed they create disturbances of personality and result in mal-formation of character.

This must not, however, lead us to suppose that by merely having ideas and ideals in life, character

will be formed. A man may have good ideas, but he may not act up to his own ideals. Ideas become forces in life when feelings are attached to them, and this happens when th ey are held on with tenacity. What is thought again and again, naturally acquires a feeling tone and becomes a sentiment in life. It then determines conduct and character. It is not one single thought of good that makes a man good but it is the habit of thinking good that makes him so.

FORMATION OF CHARACTER

We have outlined above the nature of character and how it is related to will, sentiments and ideas. Character is determined by conduct; the latter depends on will, which in turn depends on ideas and sentiments. Hence to form the character of a person, we have to educate the head and the heart as well as the hand. The whole process of education rightly viewed, consists in nothing but formation of character. On character depends the success of life, character is destiny. We shall briefly describe the means by which this object can be achieved We shall specially consider here the place of instruction, imitation, suggestion, coercion and appreciation in the formation of character.

MORAL INSTRUCTION.—One of the means of building character is to impart moral instruction. This may be direct or indirect. *Indirectly* moral ideas may be communicated through literature, history as well as other subjects of the school curriculum. Herbart. howeveer, places History and Literature first

in the curriculum of studies as they abound in moral ideas. All true Literature is moral, as all art is. Art usually is not didactic, but its influence on the soul is elevating. Literature properly taught, not only imparts noble ideas, but creates noble sentiments without which ideas would not be forces in life. Music, said Aristotle, is the catharsis of the soul. Similarly all good literature purges the soul of undesirable feelirg. Not only this, it awakens noble feelings, charms the evil propensities and sends them to sleep. Thus it makes a man imperceptively good.

For chidren the best form of literature is *fables and stories*. Children love stories, hence they can be utilized for their moral education Plato had seen the value of fiction in forming character. A fiction has a lie in it, but this lie is only a mask which truth puts on in order to appear pleasing to untutored minds. The stories of children should have a moral purpose but it should not be open. It should be concealed and the child should discover it as he grows mature in experience.

The child can imbibe moral ideas through poems also. Poems arouse emotions and so through them good sentiments can be formed. The child who has been properly taught the poem on *Patriotism*, will have patriotic feelings. Similarly, other noble feelings can be created through the teaching of poetry and drama.

The more advanced children will learn *History*. History is the record of human achievements. Of course, it abounds in errors and failures also. But

when it is properly presented it would teach how success in life can be achieved. In the long run it is not vice that succeeds, but virtue. This is what History is to show. History is philosophy teaching by examples. It should not be a mere record of failures or of successes cleverly won History teaches that there is a just Soul in the universe. It is this which ordains events and no one can cheat Him There is a moral purpose in the universe. Further it supplies the best examples for imitation. It moves emotions and creates sentiments of love for the worthy and hatred against the vicious. It is such sentiments that are effective inhibitors of vice and crime in one's own life. As Carlyle has pointed out in *Heroes and Hero-worship*, no one can be himself a hero who does not love and worship heroes. Moral lessons can be very effectively taught through lessons in History.

As to the value of *direct teaching* of morality educationists are not of one opinion. Some say, formal moral instruction does no good in building the character of the child Sometimes it suggests vices of which children may have remained otherwise innocent. Moral instruction becomes specially harmful when the teacher is known to be a man of weak character or when he does not command the respect of the students. In such cases, the impulse of contra-suggestion is aroused and then the students do just what they are forbidden to do.

Rousseau speaks against imparting moral instruction to young children. Children have no power to

distinguish the right from the wrong, hence instruction in morality in their case simply becomes imbibing dogmas, which they cling to tenaciously in later life. These dogmas shut the eye of reason, so that the child who has been thus educated can do any irrational act without compunction.

But, perhaps, the views cited above are extreme Moral instruction has also a great value in forming character. This is specially so when it is combined with religious teaching. Of course, no one has a right to become a teacher of religion and morality whom the students regard as morally weak. As a matter of fact, a teacher who does not command the respect of the students for his character is not worthy of his job, whatever be the subject he may teach. This does not mean that the teacher has to be a paragon of perfection; but he should certainly be above such weaknesses as are obvious to the eyes of children An irritable unsympathetic and indolent person cannot teach morality to children, just as he cannot influence others by his precepts.

IMITATION.—One of the effective means of forming character in children is to arouse their impulse of imitation, whenever a worthy ideal is found. Example teaches better than precept. Suitable examples are to be selected from the environment in which the child lives as well as from History and Literature. The teacher himself should be a model for the boys. The boys unconsciously copy him. Children also learn a great deal from their companions. Perhaps, there is nothing

that influences the character of a man so much as the character of his own friends. The teacher should bring to prominance one who is a suitable model for others to copy. One of the laws of imitation is that it flows like water from a high to a low level. But here what is high and what is low has to be recognised. When a child recognises some one as superior to him in certain virtues, those virtues will gradually flow to him. Let the spirit of hero-worship be developed in children. Then they will have fine character.

SUGGESTION.—In forming character, suggestion also has an important place The appeal of precept is to the conscious mind; whereas the appeal of suggestion is to the unconscious. Children are much more suggestible than adults, hence many good *habits* can be formed in them through proper suggestions. The teacher carries with him prestige suggestion. Hence, he can easily implant in the mind of the child what he thinks as good. Higher natures over-power lower ones through the force of suggestion.

But the teacher has to be very guarded in his use of suggestion. He should not arouse the impulse of contra-suggestion in their minds. When there is a lack of sympathy between the teacher and the taught, the impulse of contra-suggestion begins to work. It has a harmful effect on character of children.

There are, however, limitations to the use of suggestion. Subjecting children, too often to suggestion, weakens their character. Suggestion works in the absence of the critical faculty. With the dawn

reason, suggestion yields place to retional thought. Much suggestibility in a person, indicates weakness of will. Such a person is credulous and can be led to do whatever a man of strong will wants him to do. Hence the teacher should gradually develop rational thought in children, so that they might judge independently what is good and what is bad for them. There is no character in a man who lacks in the power of independent thinking.

PUNISHMENT.—The value of punishment in the education of the child is a much debated question of our days. The dictum of the old pedagogies was: spare the rod and spoil the child It was believed that unless the child's will be properly disciplined it will grow perverse. The christian teachers of the Mediaeval age believed that the child is born with evil and he is to be reclaimed from it Punishment purges the soul of the child of this evil. The school thus became to the child a place of chastisement rather than a place of learning Comminus called it "the slaughter house of the young'

Roussean brought a change in this attitude According to him the inborn nature of the child is good; it is society that corrupts him "Every thing is good," says he, "as it comes from the hands of the Author of Things ; every thing corrupts in the hands of men" Thus by punishing the child we do not make him noble but spoil him He grows timid in nature, and loses all power of independent thinking. He acquires the habit of doing what others require him to do.

The changed attitude is reflected these days in the

Montessori and Kindergarten systems of education. It is also to be found in Herbartian conception of discipline. Discipline should not be forced from without, but it should grow from within. In the development of such a sense of discipline lies the growth of character. The researches of New Psychology have also lent support to the views of Rousseau. Excessive use of punishment is responsible for many cases of disturbances in personality Many vices of character are contracted not due to lack of punishment but due to an excess of it. The implanting of virtues requires strengthening of the tendencies that are for good, as well as weakening of those that prompt man to evil.

The use of punishment, however, cannot be absolutely dispensed with in the school. There are certain cases of moral lapses which can be cured only by punishment Rousseau had advocated the doctrine of education by natural consequence But the child should not wait to learn all his lessons from Nature. Nature is often slow in teaching her lessons, and the cost that the learner has to pay is too much. The burnt child dreads the fire. Punishment that society inflicts is artificial fire which aims to prevent the child from evil.

Punishment may be retributive, preventive, eliminitive or reformative. Retributive punishment consists in making the culprit compensate for the wrong done by him; preventive punishment aims to prevent the individual from repeating the mistake and teaching others through him not to do a wrong act; eliminitive

punishment is directed to isolate the person from society so that others may not be contemnated by the vice in him; reformative punishment seeks to reform the will of the individual. Now in every punishment each one of the above objects is achieved; but we characterise punishment one way or the other according to the predominant motive with which it is administered. The predominant motive of punishment in the school should be to reform the child. All punishment in the school has to be thus reformative or educative.

Punishment, to be educationally valuable, should be realised by the offender as some-thing deserved by him. He should feel that it is for his good that he is being punished. It should bring penitence from him. Unless punishment awakens the moral sense of the offender, it cannot be educationally justified. For this, it is necessary that the motives of the inflictor of punishment should be above suspicion. Punishment is effective when the offender knows that the teacher has sympathy for him

The actual infliction of punishment should be regulated by the following rules:—

1. *The offender must be convicted.* When punishment is awarded to innocent persons, respect for authority vanishes The penalising authority loses moral hold on the offender; hence, it can bring no reform in him.

2. *Punishment must be proportionate to the nature of the offence.* It is, however, very difficult to determine what exactly is the measure of punishment to be inflicted in each case. Here the guiding consi-

deration should be eliciting repentance from the offender. It should touch the conscience of the offender.

3. *Punishment should be analogous to the nature of the offence.* It should strike the will at the right point. "Starve the greedy, humble the insolent, compel the idle to work, or the heedless to retrace false steps with leisurely care. Only thus will the imposition go home to the offender"* The child who comes late to the school should go to the detention class; one who quarrels with his class fellows in games should be deprived of games till he is cured of his bad habit.

4. *Punishment should be prompt and certain.* When punishment follows the offence in immediate succession, the association between the two becomes strong and this fact prevents the recurrence of the offence. When punishment is delayed too long, it is not felt as a natural consequence of the offence. Further, ample time is allowed to the offender to devise tricks to escape punishment.

Punishment must be certain. If it be otherwise it has little moral effect. It is then thought as depending on the will of the penalising authority. The clever person will try thousands of means to escape it.

5. *It should not be repeated too often.* Children will have only a general attitude of fear, if they are punished too often. What is needed is that they should fear doing immoral things only. Some times,

*Macunn: *The Making of Character*. P. 157.

punishment is not feared at all. When such a condition occurs, punishment no more remains an agent of moral education. It makes the offender a confirmed criminal.

We may repeat again that for building character we should not depend too much on punishment. It should be rarely used. It is at best only a negative factor in education. It may succeed in preventing the child from doing evil but it cannot lead him to do good. For it, other means, such as, example, moral instruction etc., will be needed.

APPRECIATION.—The value of appreciation in the building of character is perhaps not fully realised by educators. Just as evil tendencies can be most effectively inhibited by punishment, so too good ones can be properly strengthened by appreciation. As a plant requires both *pruning* and *feeding* for its proper growth, so too the child needs both punishment and appreciation for the proper development of his personality; rather the latter process is more important in either case. A teacher who does not appreciate the merits of his pupil can do him little good through punishment. Such a teacher has no right to punish him. In the absence of love and appreciation, punishment becomes an exhibition of wickedness, pure and simple. Teachers who make excessive use of punishment to gain control over the pupils require to be cured of their perverse mentality. They have some complexes in their minds formed in early life. Inferiority complex usually results in exhibition of cruelty on the wards. The teacher's

attitude towards his pupils has to be like that of a mother towards her child. The mother may beat the child, but it is done out of love. She has a right and a moral duty to punish him, simply because she loves him and appreciates him as no one else can. The child grows because of it.

The teacher should be quick to see any thing good done by the child. The child should be praised for it. Usually children do not attract our attention when they do something good. They attract our attention only when they do evil. There is a desire in human being to do something that will attract attention and if doing good will not do so one naturally turns to evil. Hence often children become morally perverse due to lack of appreciation of their good conduct.

Appreciation of the good in the child makes him spirited and full of hope. It is spiritedness and hopefulness that build character and make one's life a success. They make a man optimistic in all his undertakings. It is said 'nothing succeeds like success'. A child should know not only his weaknesses but his merits also. An individual who is too much aware of his weaknesses can achieve little in the world.

The teacher has to create in the child the habit of self-criticism and self-appreciation. It is these that really improve him morally. Here again, we have to bear in mind that too much self-criticism is bad. It may make a person melancholic and bring no improvement in him. Let the thoughts of a man be positive

rather than negative. Let him place before himself a reachable ideal of life and let him exert for it. Let him take stock of his achievements each day, and think of making amends for any wrong done. Let him not keep on repenting for misconduct too long. It simply weakens the will. "New actions" says Emerson, "are the only apologies and explanations of the old which the noble can bear to receive or to offer." Hence one should recognise his mistakes not to weep over them but to make amends for them. This is the attitude of mind we have to develop in children. Neither pure idealism nor reckless action builds character. To build character a healthy, hopeful attitude of mind which reconciles idealism to practicability is needed. Thus both self-criticism and self-appreciation are needed to make the child a healthy and well developed personality.

Exercises

1. What is meant by *will* ? How does it determine conduct and character ?
2. Analyse a voluntary act. Illustrate your answer by suitable examples.
3. What is meant by *determining tendencies* ? Bring out fully the conscious and unconscious factors that affect decision.
4. "Character is a completely fashioned will"—Elucidate. How are sentiments related to character ?
5. "Knowledge is virtue"—Discuss.
6. What psychological reasons does Herbart give in support of his doctrine that a stupid person cannot be virtuous ? Examine them.

7. Discuss the relative importance of the growth of ideas and sentiments in the development of character.
8. What is the value of moral instruction in the formation of character ? How can it be best imparted ?
9. "Example teaches better than precept."—Why ?
10. "Punishment can at best be a negative factor in the education of the child"—Comment on the statement, so as to bring out clearly the value of punishment in the growth of character.
11. When and how should punishment be inflicted to be morally useful. What are the limitations of the use of punishment.
12. "Repentance is doubly bad, for one who repents is weak and is conscious of his weakness"—How far do you subscribe to this view of Spinoza ? What is the exact value of repentance in building character.
13 How can you account for the tendency in some teachers to beat children at the smallest pretext ? What lessons can be learnt from the observation of such phenomena.
14. "Nothing succeeds like success"—Why ? How far is it true in moral spheres ? Keeping this doctrine in view, how can a teacher effectively help in building the character of his pupils ?

References:—

1. Macunn: *The Making of Character.*
2 Raymont: *Principles of Education.*
3 McDougall: *An Outline of Psychology.*
4. Stern: *Psychology of Early Childhood*

Chapter XIV

MENTAL TESTING

THE AIM OF MENTAL TESTING

In a previous chapter we have noted that there are certain inborn individual differences among children. In tastes, temperaments and intelligence no two individuals are alike. Some of the differences are created by environment, but others are congenital. The differences in intelligence and temperament are believed to be of the latter kind. Mental tests aim to test these congenital mental differences. They are not intended to measure those differences which are created by education or environment. They sort out the mentally backward and superior children from the normal ones, so that suitable methods of education may be used in each case.

As a measure of intelligence, mental tests are superior to class examinations or teacher's estimates. Class examinations measure the actual achievement of the child. High achievement may be due to his innate capacity or hard labour. An intellectually inferior child may score higher than one superior to him scores because of hard work. Very often the intellectually bright child does not put forth the maximum amount of effort that he is capable of, since he can compete with his class-fellows of normal intelligence without it. It is the duty of the educator to find out what each child is capable of, so that maximum work may be exacted

of him. The intellectually inferior child suffers when he is put in a class of normal children, since he does not profit as much by the instruction imparted there in as the others do. His presence simply retards the progress of normal children. Thus, the system of education, which does not take note of congenital mental differences, cannot be regarded as psychologically sound. To a certain extent each class of children suffer in it. The bright children become mischievous, since they get ample leisure after doing the minimum work required to keep pace with normal children. The duller ones become still more dull, and have to give up their studies, since they cannot, inspite of their best efforts, go with the normal ones. The normal child also suffers as he has to wait for the subnormal to come up to him.

EARLY MENTAL TESTS

Dr. Alfred Binet (1857-1911), a French Psychologist, devised the first mental tests. He was faced with the problem of finding out intellctually backward children in the schools of Paris, so that they could be educated separately by improved methods. He with the help of his colleague Simon constructed the first successful tests for measuring intelligence in 1904. The scales they devised have been revised and translated into various languages

Binet framed a number of questions which required information that every child is expected to possess at a particular age without schooling. These questions

were given to thousands of children. Those questions which could be answered by 75 % of the tested children of a particular age were deemed fit for that age. Thus the mental age of a child could be measured by giving him tests for a particular age. He would be regarded as having the mental age whose tests he can successfully answer. Binet had framed tests upto the age of fifteen. Here are some specimen of his tests:—

BINET'S TESTS

THREE YEARS.

1. Where is your nose ? Eyes ? Mouth ?
2. Say these numbers: 6-4 (8-3) (7-5) [Three attempts one success].
3. What do you see here ? (showing objects in a picture)
4. What is your name ?
5. Say what I say: "It is hot ! Let me stop"

FOUR YEARS.

1. Are you a little boy or a little girl ?
2. What is that thing ? (key, knife, half penny) [Three attempts one success]
3. Say these numbers:7-2-9 (8-5-7) (4-9-3).
4. Which of these two lines is longer ?

FIVE YEARS.

1. Which of these two boxes is heavier ?
   3 gr. and 12 gr.

6 gr. and 15 gr.
3 „ „ 12 „

2. Draw this for me (square).
3. Say what I say. "My name is John. What a naughty kitten !"
4. Count how many half-pennies there are here (4)
5. Put those together so as to make a shape as this (oblong card).

SIX YEARS.

1. Is it morning or afternoon ? (a. m.)
   Is this afternoon or morning ? (p. m)
2. What is a fork ? Table ? Chair ? Horse ? Mother? (3 right)
3. Draw this for me (diamond shape)
4. Count how many half pennies there are here (1 ½)
5. Which of these two faces is prettier ? (3 right)

SEVEN YEARS.

1. Show me your right hand. Show me your left ear.
2. Tell me what you see here (pictures)
3. Put this key on the chair over there. Then shut the door. Then bring me that box.
4. (3 pennies and 3 half-pennies). I want you to put your finger in turn on each coin and as you do it, count aloud how much you have, always counting in half-pence.
5. What colour is this ?

EIGHT YEARS.

1. How is a butterfly the same on a fly ?

2. Count backward from 20 to 0.
3. What is missing in this face ?
4. What is the date to day ?
5. Say these numbers: 7-3-5-2-8 (9-4-1-6-3) (2-5-9-3-8) (1 right).

GRADATION OF INTELLIGENCE.

INTELLIGENCE QUOTIENT.—The tests of Binet have been modified and improved upon in many ways. One important improvement consisted in the introduction of the concept of Intelligence Quotient, Binet used to express retardation in terms of years. Thus a six year old child who could only answer questions meant for five years of age was taken to be retarded by one year. Similarly a ten year old boy who could only answer questions meant for nine years was also considered as retarded by one year. But clearly the retardation in the two cases is not the same. The retardation in the former case is much more serious than in the latter case.

William Stern introduced the conception of Intelligence Quotient or I. Q This expresses the intelligence of a person much better than the device of Binet. The Intelligence Quotient is the ratio of the mental age to the chronological age. This ratio is usually multiplied by hundred. Thus we have the formulae:—

$$\text{I. Q.} = \frac{\text{M. A}}{\text{C. A.}} \times 100$$

Here M. A. stands for the mental age of the

subject, C. A., for his chronological age and I. Q, for Intelligence Quotient.

INTELLECTUAL GRADES:—Children are classified according to their intelligence as follows:—

Class	I. Q.
Near genius or genius	Above 140
Very superior intelligence	120—140
Superior	110—120
Normal or average	90—110
Dull	80— 90
Borderline deficiency	70— 80
Feeble-minded (Moron)	50— 70
Imbecile	25— 50
Idiot	0— 25

TYPES OF TESTS

INDIVIDUAL AND GROUP TESTS.—The tests framed by Binet were individual tests Individual tests are administered to one person at a time. The examiner watches carefully the reaction of the subject to each of the questions of the tests. If a large number of children were to be examined much time would be required. They also require on the part of the examiner a knowledge of the technique of mental testing and a training in administering the tests Hence intelligence tests did not become popular so long as new types of tests were not framed The new tests are *group tests*.

Group tests are administered to a large number of subjects at the same time. They were framed first in America to select efficient persons to serve in the army

during the last Great War. There were two types of these tests, one for the literates and the other for illiterate men. These are known as the *Alpha Army Tests* and the *Beta Army Tests*. Later on the group tests were framed in England and elsewhere. Now-a-days it is these tests which are more popular. As a large number of persons can be examined at the same time, they do not require much time in being administered. Moreover they do not also require a highly specialised training on the part of the examiner. The actual marking can be done by even clerks with the help of the answers given in the key.

PERFORMANCE TESTS.—Performance tests are meant for those persons who are poor in language, who cannot read and write. A large number of such tests has been devised for infants and for illiterate adults. Such tests are individual rather than group tests. While administering the tests the examiner notes the number of mistakes committed by the subject in a given task. The *Formboard* Test is a good illustration of the performance tests. This consists of a board with openings of various shapes cut out of it and blocks which must be fitted in the openings. There is a great number of different types of formboards. The exact type of the block is to be fitted in the proper opening. The errors committed by the subject are carefully noted. The test requires recognition of shapes of the opening and the blocks. The more intelligent person completes the performance quickly and with few mistakes, whereas the mentally deficient takes a very long time.

Another good illustration of the performance test is the *Ball and Field Test of Terman.* A circle is drawn about two and a half inches in diameter with a gap. This represents a round field with an open gate. The subject is told to imagine that a ball has been lost somewhere in the field. Its whereabouts and the direction from which it came are unknown. He is then given a pencil and then asked to mark out the path he would actually take in his search for the ball, beginning at the gate so as to be sure of not missing it. This test is quite useful for children of ten years of age.

ACHIEVEMENT TESTS.—Intelligence tests measure the innate ability of an individual; achievement tests measure the result of school education. The former measure innate intelligence; the latter measure result of intelligence plus application. A teacher in addition to his knowledge of the innate ability of his pupils needs to know his skill and the achievement as a result of his teaching. By giving achievement tests to a class in different subjects, the teacher can determine the progress of each student in each subject.

The idea of testing achievement like the idea of testing intelligence was first conceived by Binet. There have been many developments since then. The old-fashioned examination has many drawbacks. In the first place, it cannot examine students in the whole syllabus within three hours of time. Secondly, very often the questions are not carefully framed so as to be suitable for every student of the class. A student who applies to the selective

study of subject may do very well in the examination without thoroughly studying the subject. An achievement test is free from these defects. It is prepared like an intelligence test which requires brief answers. The questions cover the whole syllabus, so that no room is left for chance. The administering of an achievement test does not take more than an hour. It can be marked quickly; even a clerk can do it.

SCALES OF INTELLIGENCE.

There are two scales used in measuring intelligence. One is *the age scale*, and the other is *the point scale*. In the case of the age scale there are different tests for different ages. A test for a particular age represents what a normal child of that age should be able to do. If a particular boy can not only do the test meant for his age, but can do tests for higher ages also, he is considered superior in intelligence. If, on the other hand, he fails to do the test for his own age, he would be considered as mentally backward.

In the case of the point scale the test is the same for different ages, but the standard of achievement in the test for different ages is different. Thus, if a test contains ninety questions, it may be expected of a boy of the age of fifteen to give correct answers to eighty, whereas a twelve year old child may be expected to give correct answers to sixty only. These would be the norms for the two ages. Now, if a boy scores in the given test more than what is expected of his age, he would be considered as mentally superior; if he scores

less, he is mentally deficient; similarly if he scores just what is expected of him by the norms fixed, he is to be considered normal.

The norms, in the case of either scales, are determined by giving the tests to a very large number of subjects and ascertaining what an average boy is capable of. In making age norms, those questions of the test, that an average boy of a particular age cannot actually answer, are eliminated from the test meant for that age. Only such questions are retained as the average boy can answer. To find out what an average boy of a particular age can do, we should see that 75% of the boys of that age succeed in the test.

In the case of point scales, the average achievement of a particular age is determined by actually finding out what the boys of that age do in the test. This is to be divided by the number of boys examined. This gives the achievement of the average or the normal boy. It would be the standard for that age.

By the above two kinds of scales the Intelligence Quotient of a person can be determined, which is the ratio of the mental age to the chronological age. But they are useful for children up to the age of sixteen only. For adults different kinds of tests have to be framed, or age consideration has to be eliminated. It is believed by psychologists that there is no growth of intelligence after the age of sixteen. At least, it is not possible through the tests to measure the intelligence which grows after that age. In measuring intelligence of adults the measure called *percentile*

rank is used. The percentile rank of a person is the rank which a person occupies when he is compared with hundred persons of varying abilities. The average man has the fiftieth percentile rank; superior ones will have higher percentile ranks and inferior ones, lower percentile ranks.

NATURE OF INTELLIGENCE

Intelligence testing went on merrily for many years before the awkward question—what is intelligence, arose. One psychologist defined intelligence in one way and another in another. Some would include the power of sustained attention, retention or imagination among intellectual qualities, whereas others would not. They tried to come to an agreement by meeting in conferences called for the purpose But the more the problem was discussed and efforts to reach at an agreement made, the more divergence of views was revealed among the leading men. "No common nucleus of meaning is discoverable", says Ballard "unless it be that intelligence is something that is measured more or less exactly by Binet's Scale and by the American Army Tests. Nor do the views of European psychologists show much more unanimity." According to Ballard himself, intelligence is a composite thing, and means more than a synthetic power; the one important factor of intelligence is the power to integrate experience; there may be other factors correlated with this but what the factors are, and

how they are correlated with this main factor his investigations do not show.

THEORIES OF INTELLIGENCE.—Charles Spearman, who is regarded as a great authority on the subject, classifies the current theories of intelligence into three main types: "the monarchic" "the oligarchic and "the anarchic". The monarchic view regards intelligence as a unitary faculty which determines the level of a man's achievement in any intellectual enterprise he may pursue. It is this faculty which enables an individual to adjust himself effectively to changing environment. The oligarchic view (held by Thomson and Kelly) does not regard intelligence as one single faculty but a composite of a few main unrelated powers. A person who is good at mathematics may be lacking in the power to learn language Hence his ability in one subject does not give us a sure basis of judgment as to his ability in another. The anarchic view is an extreme form of this theory. Its chief exponent is E. L. Thorndike. According to this view, "the mind is a host of highly particularised and independent faculties". If this be true we can say absolutely nothing about the ability of a man to do a given task from his ability to do one. requiring the use of different mental powers. The total intelligence of a man is the sum of all his abilities. The proof of the validity of either of the theories depends not on some apriori or critical considerations but on quantitative measurement. High mathematical ability is needed to follow the arguments

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on either side. The exponents try to establish *Co-efficient of correlation** between different abilities. A high correlation between two abilities shows their great similarity whereas low correlation shows little similarity. If there be some amount of similarity in different abilities it would prove the presence of a common factor. Spearman affirms the existence of such a common factor among all abilities whereas Thorndike denies it.

MEASUREMENT OF ACHIEVEMENT

To measure achievement we have first to determine the educational age of the child, and then to find out the Achievement Quotient.

EDUCATIONAL AGE.—Education age is determined by finding out *achievement age* of a boy in

*Co-efficient of correlation is an index, which shows how far one ability is akin to another. Supposing that two given abilities are found by *experiment* and *comparison of results through statistics* to be of a like nature, then the facts would be expressed by saying there is perfect correlation between them, or that the correlation co-efficient of the abilities is 1. if, however, it is found that an increase in one ability is invariably accompanied by a corresponding decrease in another, then there would be said to exist a perfect negative correlation between the two abilities, or the correlation co-efficient is —1. Thus there may be a high degree of correlation between abilities required to learn a language and to learn history The correlation co-efficient may be, for instance ·86 and there may be little correlation between learning a language and learning mathematics—the correlation co-efficient may be ·2, or there may be no correlation at all. that is, nothing may be predictable about one ability from knowing facts about an

different subjects and dividing it by the number of the subjects. Achievement age in a subject of study is found out in the same way as the mental age is found while measuring intelligence. If a boy, whose chronological age is eight years, reads as well as a normal boy of ten years does, then the achievement age of the boy in reading would be considered as ten years. The achievement ages of the same person in different subjects may be different. By finding out the average of the achievement in various subjects we get the *education age* of the boy.

ACHIEVEMENT QUOTIENT.—Achievement Quotient is the ratio of the education age to the mental age of the subject. It is multiplied usually by 100. Thus we have the formulae:—

$$\text{A. Q.} = \frac{\text{E. A}}{\text{M.A.}} \times 100.$$

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other. This would be the case when any increase in linguistic ability is not *invariably* accompanied by either a corresponding increase or decrease in mathematical ability. If there is concomitant variation in the same direction, the correlation would be positive, if the variation is in the opposite direction, the correlation would de negative. Spearman's own theory ultimately rests upon the fact that there is always some degree of positive correlation between all cognative abilities, Thus positive correlation obtains, due to the fact that in all intellectual functions there is the general factor 'g' always working. Should it be conclusively proved that there are some abilities between which no positive correlation exists—that is, if they have either negative correlation or no correlation at all, the theory of Two Factors will fall to pieces. There will be left no basis for supposition of the general factor 'g'.

The Achievement Quotient of a person may be high or low according to as he exerts himself or not as required by his intelligence. Thus two boys of the same chronological age but of different mental ages, doing equally well in the school work will show different Achievement Quotient. If a boy with superior intelligence does only as well as a normal boy, his Achievement Quotient will be low. He is not making full use of the powers.

INTELLIGENCE TESTING IN INDIA

DIFFICULTIES IN FRAMING THE TESTS.—There ars many difficulties in framing intelligence tests in India. There is lack of trained workers in the field. Then there is the language difficulty, the difficulty of determining the exact ages of children, and that of proper sampling. The last difficulty is perhaps the most serious. Due to lack of universal and compulsory education, it is difficult to find the average achievement of a boy of a particular age. All intelligence tests are, as a matter of fact, administered in schools. Where there is compulsory education, the age variation in the same class of a school is not great. There is usually a difference of one or two years between the ages of the boys reading in the same class; for they all start their school career at the same age. This is not so in India, Children in this country come to school at different ages, it being left by the Government to the option of the parents to send children to school whenever they please. Hence we find that in the same class students read

whose ages vary by five or six years. In such circumstances reliable age norms cannot be framed. For, in a test due to the same schooling, a boy of fifteen may do only as well as a boy of ten. Mr. S. S. Jalota, who has put forth considerable amount of labour in standardising the tests framed by him, had to frame not only *age norms* but *grade norms* as well. This shows that the intellectual achievement differs not only according to the age of a child but also according to his grade or the class in which he reads. But *grade norms* can measure only achievement and not intelligence of children. As for the age norms, they are not reliable due to much age variation in the same class.

This difficulty seems to be unsurmountable, since the factor of schooling cannot be eliminated while measuring intelligence. When we measure the intelligence of a person we measure his ability to profit by experience. But if the child has not had the opportunity of having the required experience at all or exercising his intelligence, how can we know that he lacks in the innate capacity. In India due to lack of a good system of education the intelligence of children is not properly developed. To measure intelligence in the absence of ample facilities of growth, is to build on unreliable data.

WORKERS IN THE FIELD.—We must, however, admire the efforts of the pioneers in this field. They have tried to achieve whatever under the circumstances is possible. Intelligence tests have been framed using both the *age scale* as well as the *point scale*. Some of them are considered as standardised,

others are in the process of standardisation. The workers in the field are Dr. Gopalswami of Mysore University, Dr. Reverend Manziel of Raipure, Dr. Royce of Allahabad, Mr. S.S. Jalota of Lahore, Dr. V.V. Kamat of Belgaon. One of the earliest attempts at framing intelligence tests to suit Hindi speaking chrldren of this country is that of Rai Bahadur L. S. Jha. When he was the principal of the Teachers' Training College, Benares, he framed tests on the basis of Simplex Group Tests and Terman's Group Tests. They were administered to quite a large number of boys and an effort at standardisation was made. Mr. V. G. Jhangrin carried on the work further. He has also framed his own tests.* They are not as yet standardised.

Exercises

1. What is an Intelligence Test ? How does it differ from the ordinary examinations ?
2. What are the special features of the tests framed by Binet ? In what respects are they improved ?
3. What is Intelligence Quotient? How are individuals graded according to their intelligence ?
4. How are intelligence tests framed? Give a specimen. of the questions contained in a test.
5. Point out the comparative advantages of individual and group tests? How are the two tests administered?
6. How can we test the intelligence of the literate persons ? Describe some tests meant for them ?

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* See Appendix.

7. Give an account of the *Two Factor Theory* of intelligence. Compare it with the *Theory of Multiple Factors.*
8. What is an *age scale* ? How is it framed ?
9. Outline the procedure of constructing a *point scale.* In what respects does it differ from the *age scale* ?
10. What are the difficulties involved in constructing suitable intelligence tests for Indian children ? What effort is made in this direction ?
11. What is an achievement test ? What are its advantages over periodical class examinations ?
12. Explain the following terms :—
    Educational Quotient, Achievement Ratio, Mental Defficiency.

References: —

1. Freeman : *Mental Tests.*
2. Tred Gold : *Mental Deficiency.*
3. Mc. Call : *How to Experiment in Education.*
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Chapter XV

THE UNCONSCIOUS

CHANGE IN THE CONCEPTION OF THE MIND

We have defined Psychology as the science of the mind. The concept of the mind, however, has been changing from time to time. At one time the mind was regarded as an aggregate of faculties; at another, as totality of mental processes. In recent years due to discoveries made by people who had to deal with mental diseases, the conception of mind has undergone a fundamental change. These discoveries have given birth to a new science called Psycho-analysis, which is also sometimes called New Psychology.

The Three Levels:—According to Psycho-analysis, the mind which we ordinarily know and study is only a fringe of the total human mind The mind in which mental processes, that are studied through introspection, go on is the *conscious mind*. Below this conscious mind is the unconscious mind Sometimes the portion of the mind beyond conciousness is viewed as consisting of two parts—*the preconscious mind* and the *unconscious mind*

The Contents of the Conscious—The conscious mind is the mind in which thoughts and feelings of which we are aware go on. It is the mind which guides conscious human activity. All the processes of the mind that involve attention are in the

conscious mind. This mind makes each of us feel as a personality. It is therefore called by the psychologists as the Ego.

THE PRECONSCIOUS MIND.—The second part of the mind is called the preconscious. In this part of the mind all experiences are retained. In this mind ideas stay before t ey are called to consciousness. This part is responsible for memories and for ideas of imagination. It is, in a word, the storehouse of the vast experience that we ever had and which is available to us whenever we need.

THE UNCONSCIOUS MIND.—The unconscious is that portion of the mind wherein repressed memories, feelings and desires are present. This portion is inaccessible to consciousness, that is, we cannot know the contents of our own unconscious mind even if we desire to know it. It is not so in the case of preconscious. The repressed feelings, memories and desires are present in the unconscious, but they avoid coming up to consciousness. These wishes do not lie idly there, but they are highly active. They are always making effort to come up to consciousness. They sometimes appear in semi-conscious states as in dreams. They also disturb the work of the conscious mind now and then. Thus they are responsible for slips and omissions, lapses of memory, idiosyncracies of men, and disturbances of personality, such as, hysteria and dual personality. They also cause abnormal behaviour on the part of individuals. Delinquencies of children are also caused by them. Thus in a

thousand and one ways they obstruct the smooth flow of life.

THE EGO, ID AND THE SUPER-EGO.—Sometimes, the mind has been conceived of as made of three parts, called Ego, ID and the Super-Ego. The Ego is the conscious mind; the ID is the unconscious and the Super-Ego is that which represses undesirable tendencies and wishes from coming up to consciousness. These differ much in their nature The ID is unconscious; it is a-moral; it is dominated by pleasure-pain principle; it is illogical; it is the seat of all instincts, habits and sentiments. The Ego is conscious, logical, it deals with precepts, reality and the outer work: it adjusts relations between the internal wishes, the moral sense and external reality. The Super-Ego rules the ego; it is largely inaccessible to the Ego; it is the moral sense of the individual or his conscience; it maintains a censor to hunt out or repress undesirable tendencies in the mind.

If we compare the whole mind to a theatre, the conscious part will be comparable to the stage where the actors play their part, the unconscious to the anti-chamber where the actors stay when they are not actually acting and the Super-Ego would be the critic who determines whether a particular actor is fit enough to come up to the stage or not.

DREAMS AND DAY-DREAMS

The wishes that are denied gratification during the waking consciousness appear in dreams. Dreams,

according to Freud are caused by repressed wishes. In dream consciousness they are partially gratified. The greater the repression, the more will be the tendency of the wishes to seek their fulfilment in dreams. Thus the saying of Plato that saints content themselves with dreaming what the sinners do in waking life is borne out by the evidences of Psycho-analysis.

We do not, however, recognise our dreams. Much of what we dream is forgotten and what is remembered seems to have no meaning. This is due to the work of the *censor*. The repressed wishes usually pertain to animal wants. They cannot freely come to consciousness in the waking life. But during dreams also they put on garbs so that they may not be detected by half-conscious censor and be repressed. Thus the gratification of wishes in dreams is symbolic. Freud has tried to interpret with great ingenuity the dream symbolism. Much of dream symbolism refers to sex wishes. We forget our dreams, so that the memory of them may not be painful to us; we forget any thing that might bring to us tortures of conscience.

Day-dreams are also caused by repressed wishes. Children are given much to day-dreaming. This is due to the fact that many of their wishes remain ungratified. If we were to study the day-dreams of children we would be able to trace out the respressed wish. Morgan gives the case of a child who was often day-dreaming that his father was running away from home. This was due to a repressed wish on the part of the child to see the father run away from home.

Too much of day-dreaming on the part of children is bad. It makes them impracticable in their life. Children's day-dreams should be utilized in developing constructive and creative imagination. The child should be brought more and more in contact with reality. Thus will the day-dreaming of the child be curtailed.

MENTAL CONFLICT

As pointed above, when a desire or a feeling is repressed, it does not die away; it recedes back in the unconscious mind. But here it becomes a conspirator against the conscious mind. When several such desires are repressed, they get associated with each other and form a *complex*. A complex thus is made up of a number of repressed feelings and desires. There may be many complexes in the mind of an individual. These complexes create mental conflict, that is, a conflict between the conscious and the unconscious mind. Due to this conflict, there is much loss of energy and efficiency in the behaviour of on individual. When the complexes are very strong, they create such phenomena as insanity and hysteria. In ordinary life also they are responsible for many forms of abnormal behaviour.

CHILDHOOD AND THE UNCONSCIOUS

Childhood is the period when many complexes are formed. Hence the study of childhood is very useful from this point of view. Parents and teachers should see that children do not form

complexes which will later on make their life burden to them. The child lives much at an unconscious level. The experiences of childhood are held on tenaciously by the individual. The adults should see that the child gets no such experience as will become a source of complex in future life.

DELINQUENCIES OF CHILDREN.—Delinquent behaviour of various kinds, which we find among children, has its origin in complexes. Due to complexes children contract such bad habits as boasting, bullying, lying, teasing others, complaining, backbiting and spoiling the articles of the school. These are all reactions of the inferiority complex. Those children whose instinct of self-assertion has been repressed, who have been denied the love and affection of the guardians, who are not appreciated for their merits, become the disturbers of peace. There is a desire in the heart of every individual to gain the appreciation of others, that is, to make himself recognised by others as someone-in-particular. When a person fails to gain public recognition for his merits, he makes himself recognised for his demerits. No one would like to be ignored; particularly a child with energy would never bear to be ignored.

When a particular child finds that another child is being appreciated whereas he himself is being ignored, he becomes an enemy of this child and begins doing all kinds of mischief against him. Wrong use of punishment is a great factor in creating delinquencies among children. They begin to hate the teacher who

administers such punishment. They also begin to hate any child who escapes the punishment. They complain against him to the teacher and become his enemy. Thus the child who is a favourite of the teachers suffers most. The tone of the class cannot be morally high when the teacher is suspected of being unjust in the administration of punishment. The observations of Morgan in this connection deserve attention.

"Any child tends to dislike those who make him uncomfortable, inefficient unintelligent, immoral, fearful, ashamed. or unimportant. Such dislike becomes intensified if he thinks that he has been a victim of unfairness or prejudice. If a child is punished at the same time that another child, whom he regards as being equally guilty is not punished, is not the child likely to hate both the other child and the adult who judged the case and administered the punishment? Such hatred makes a child feel that he is justified in making the hated individual suffer on any possible occasion. He feels highly pleased if he can out-wit the teacher and have his enemies punished; his attitude is one of bitterness The habit of blaming others when combined with hate makes a most pernicious combination"*.

Undue emphasis on rigid discipline also creates many undesirable tendencies among children. When discipline is very rigid and constant use of punishment is made for breech of rules, there is a tendency to invent

* *Psychology of the Unadjusted School Child* P 158

lies to deceive the teacher and escape punishment. When the awarding of punishment becomes too frequent, children do not view it as something deserved by them. They begin thinking that they are being punished due to the ill-will of those who award punishment. Hence they feel a secret pleasure in putting such persons to difficulty. Even where consciously they behave as good boys, their unconscious mind is always desiring to inflict pain on those who inflict pain on them. Thus children do mischief in the class even without making any plan for mischief. They would unknowingly commit such mistakes in conduct that the teacher would be annoyed. Consciously they might like to please the teacher, but as the unconscious does not want it, they succeed only in displeasing him.

This makes it evident that injudicious use of punishment and rigid discipline create the very atmosphere which the teacher avoids to create in the class. It deforms the character of the child. The only educational justification for punishment is when punishment is a direct consequence of the act of the child himself. If a punishment comes directly and automatically, it creates a healthy attitude of mind in the child. The child fears doing wrong, and thus is led on to do the right. But when the punishment is delayed, uncertain, is too often repeated, the child sees no connection between his guilt and the punishment. Such punishment deforms character. The child then takes pleasure in deceiving the teacher and annoying him.

RETARDATION IN STUDY.—Repressed complexes cause retardation in study also. Children soon forget poems learnt in the detention class. This is due to the fact that the poem has become associated with an experience of pain and shame. Memory of such experiences is repressed. Hence, whatever is associated with them is forgotten. Similarly children will forget lessons taught by a teacher who punishes them too often; whereas lessons taught by a sympathetic teacher will be remembered all their life. Hence no lesson that is forced in proves of any value to the child. What is learnt with interest and joy alone proves useful in after-life.

There are certain subjects of study that become distasteful to school children due to a wrong manner of presenting them. Thus history becomes a difficult subject to Indian students due to the fact that much of it is merely presentation of dates and names. The events and the personalities themselves are so presented as to be disgracing to the Indian child. No one likes to remember events connected with one's own shame. Similarly, events connected with the defeat and shame of one's nation cannot be remembered. It is against the patriotic instincts. The history of a nation should present its glories and the progress it has made Where errors are shown by historians, they should be so presented as to be a lesson for future success. This is hardly to be found in the history of a nation written by foreigners, particularly when they happen to be conquerors of the nation. They would be interested

in knowing what is useful to themselves. We may contrast the history of India written by some foreign writer with that of England written by a Britisher. Hence there is no wonder, that the students of this country fail in effectively mastering the events of history. Since the time Indians themselves have been writing history and giving new interpretations of past events, history is becoming a popular subject among the students.

Some children have a permanent aversion towards studies due to a mishandling of them by their parents and teachers. Anna Freud in her book *Psychoanalysis for Teachers* gives the case of a boy who began to suffer form mental retardation due to neglect and lack of appreciation of his merits on the part of the parents. The same child when handled with sympathy showed remarkable progress. Dumville cites the case of King Edward VII as having an aversion to all kinds of serious studies. This was caused by an early wrong education. His father wanted to make him learned too soon and he took every care to keep the child busy with studies all the time But this did not bring love for studies in the mind of the child but created an aversion to them for all time.

We should take lessons from such cases. Nothing should be taught to the child too early. We must follow the laws of mental growth, if we want to do real benefit to children.

EXERCISES

1. Describe briefly the changes that the concept of the mind has undergone in the present century. What

is their importance from the point of view of the educator ?

2. How are dreams caused ? Why do we not know most of our dreams ?
3. What are day-dreams ? What is the duty of the educator in respect of the day-dreaming of children ?
4. Explain the psychology of complaining. How can we effectively check this tendency as found among children ?
5. What causes delinquent behaviour among children according to psycho-analysis ? How can such behaviour be prevented ?
6. "The child who is a favourite of the teacher suffers most"—Why ? What should a teacher do to promote a healthy moral tone in the class ?
7. When is punishment educationally justified ? What are the consequences of injudicious use of punishment ?
8. How does a complex cause mental retardation ? How can such retardation be got rid of ?
9. What is an *inferiority complex* ? How can we prevent the formation of this complex in the mind of the child ?

References:—

1. Home Lane—*Talks to Parents and Teachers.*
2. Green : *Psycho-analysis in the Class Room.*
3. Miller : *An Introduction to Psycho-analysis.*
4. Morgan : *Psychology of the Unadjusted School Child*
5. Transley : *New Psychology.*

APPENDIX.

JHA'S SIMPLEX GROUP-TESTS

(Specimen of the type of questions)

१—क

इन्हें देखो और हरएक पंक्ति में उस शब्द के नीचे लकीर खींचो जो वहाँ ठीक नहीं बैठता है।

१.	गौरैया	मैना	चमगादड़	गिद्ध	बाज़
२.	चाँदी	ताँबा	लोहा	सोना	लकड़ी
३.	रेशम	ऊन	कपास	सन	बिछावन

२—क

नीचे लिखे प्रश्नों को एक एक करके पढ़ो और एक एक के जो तीन तीन उत्तर दिये हैं उनमें सबसे अच्छे उत्तर के पास खाने में यह × चिह्न बना दो।

१. रेल की पटरियाँ लोहे की बनी होती हैं—क्योंकि

	लोहा मज़बूत होता है।
	वह खूब चमकता है।
	वह भारी होता है।

२. बन्दर फल खाते हैं—क्योंकि

	वे मुफ़्तिक से मिलते हैं।
	वे मीठे होते हैं।
	बन्दर पेड़ों पर चढ़ सकते हैं।

१. "कौड़ी कौड़ी जोड़ के विद्यवन होत धनवान।
अक्षर अक्षर के पढ़े मूरख होत सुजान॥"

इस कहावत का अर्थ है कि:—



छोटी बातों पर ध्यान दो और तुम बड़े काम कर जाओगे।
एक एक अक्षर बाँचने से मूरख सुजान हो जाता है।
धनवान लोग कौड़ी इकट्ठी करते हैं।

३—क

नीचे की हरएक पंक्ति में कोष्ठक के भीतर उन दो शब्दों के नीचे लकीर खींच दो जो कोष्ठक के बाहर लिखी चीज में हमेशा पाई जाती हैं।

१. लड़का (सिर, कुरता, खाल, टोपी, जूता)

२. बन्दूक (बारूद, नली, हैण्डिल, (कुन्दा), कारतूस, सिपाही)

३. किताब (छपाई, कहानियाँ, कागज, तसवीर' पन्ने)

४—क

इसे देखो:—

आकाश का नीलेपन से वही संबंध है जो घास का उगने, हरेपन, कटने, मुरझाने से।

आकाश नीला है और घास हरी है इसलिये 'हरेपन' के नीचे लकीर खींची है।

अब इसी तरह नीचे लिखे सवाल करो:—

१. अँधेरे का रोशनी से वही संबंध है जो काले का
(लाल, रात, दिन, सफेद) से।

२. कुत्ते का पिल्ले से वही संबंध है जो गाय का
(बैल, बछड़ा, भेड़, घास) से

३. मंदिर का कलश से वही संबंध है जो क़िले का
(फाटक, पुल, बुर्ज, खाई) से।

५—क

नीचे लिखे उदाहरणों में वही करो जो कहा गया है:—

१. कोष्ठ के भीतर वर्णमाला का छठा स्वर लिखो ( )

२. कोष्ठ के भीतर "ग" के बाद का पाँचवाँ वर्ण लिखो ( )

३. अगर ५ और ६ का जोड़ १३ से ज्यादा हो तो आगे खाने के भीतर यह × चिन्ह लगा दो नहीं तो 'नहीं' के नीचे लकीर खींच दो—☐नहीं।

६—क

नीचे लिखे वाक्यों में शब्द सब गड़बड़ रक्खे हैं।

सोचो कि अगर शब्द ठीक से रक्खे होते तो क्या वाक्य बनता। अगर उसमें सही बात कही हो तो ठीक के नीचे लकीर खींच दो और झूठ बात कही हो तो गलत के नीचे।

१. हैं जाती मछलियों में पाई पानी ... ... ठीक गलत

२. पाते नहीं दुष्ट सजा मनुष्य कभी ... ... ठीक गलत

३. जानवर एक है पालतू शेर ... ... ठीक गलत

७—क

नीचे दी हुई पंक्तियों में उन दो संख्याओं को लिखो जो क्रम से बाद में आती हैं।

१	३	५	७	९	११	( )( )
२२	२८	२४	२०	१६	१२	( )( )
२	७	४	८	६	६	( )( )

८—क

'पतन' के वही माने हैं जो (उठना, गिरना, कूदना, दौड़ना, ठहरना) के।

'पतन' का वही अर्थ है जो 'गिरने' का, इस लिये 'गिरना' के नीचे लकीर खींच दी गई है।

अब इसी तरह से इनको करो:—

१. तरस्कृत देने का वही अर्थ है जो (प्रेम करना, दया करना आनन्द मनाना, ताइस बँधाना, निन्दा करना) का।

२. पराजित करने का वही अर्थ है जो (दंड देना, हराना, सूजना, फटना, घृणा करना) का ।

३. क्षुद्रता का वही अर्थ है जो (भय, क्रोध, कंजूसी, पागलपन, नीचता) का ।

९—क

नीचे के हरएक वाक्य में एक खाली जगह है जिसमें एक ऐसा शब्द रखना है जो वाक्य को पूरा कर देगा । वह शब्द कोष्ठक में दिये हुए तीन शब्दों में से एक होना चाहिये । जो शब्द तुम्हें ठीक जान पड़े उसके नीचे लकीर खींच दो ।

१. रेलगाड़ी थोड़े समय में बहुत दूर·····सकती है [जा, उड़, ठहर]

२. हमें आग से ·····रहना चाहिये [दुखी, जला हुआ, सावधान]

३. मैं आऊँगा·····मैं आ सका [तो, अगर, किन्तु]

APPENDIX 2.

Prof. V. G. Jhingran's Tests

(Specimen of questions)

१—प्रेम का उलटा कौन शब्द है ?

१. समानता, २. क्रोध, ३. घृणा, ४. अजीब, ५. प्रेमी। ( )

२—सोने की कीमत चाँदी से ज्यादा होती है क्यों कि वह—

१. अधिक भारी होता है, २. अधिक सुन्दर होता है, ३. अधिक सख्त होता है, ४. अधिक पीला होता है, ५. अधिक नहीं मिलता है। ( )

३—नीचे लिखी कहावतों में से किसका अर्थ है—नौ दो ग्यारह हो जाना।

१—नौ नकद न तेरह उधार।

२—न नौ मन तेल होगा न राधा नाचेंगी।

३—एक-एक ग्यारह होते हैं।

४—साँच को आँच नहीं।

५—तीन तेरह हो गये। ( )

४— पिता अपने पुत्र की अपेक्षा—

१. बुद्धिमान्, २. मज़बूत, ३. धनवान्, ४. लम्बा, ५. अनुभवी होता है। ( )

५—नीचे लिखी क्रमिक संख्याओं में एक संख्या ग़लत है, वह कौन-सी है ?

२, ७, ३, ८, ४, ९, ५, १०, ६, १२।

६—यह कहना कि पत्थर को जान होती है—

अब इसी तरह से इनको करो:—

१. तसल्ली देने का वही अर्थ है जो (प्रेम करना, दया करना आनन्द मनाना, डाह्स बँधाना, निन्दा करना) का।

२. पराजित करने का वही अर्थ है जो (दंड देना, डराना, सूजना, फटना, घृणा करना) का।

३. सुस्तता का वही अर्थ है जो (भय, क्रोध, कंजूसी, पागलपन, नीचता) का।

९—क

नीचे के हरएक वाक्य में एक खाली जगह है जिसमें एक ऐसा शब्द रखना है जो वाक्य को पूरा कर देगा। वह शब्द कोष्ठक में दिये हुए तीन शब्दों में से एक होना चाहिये। जो शब्द तुम्हें ठीक जान पड़े उसके नीचे लकीर खींच दो।

१. रेलगाड़ी थोड़े समय में बहुत दूर·····सकती है [आ, उड़, ठहर]

२. हमें आग से·····रहना चाहिये [दुखी, जला हुआ, सावधान]

३. मैं आऊँगा·····मैं आ सका [तो, अगर, किन्तु]

APPENDIX 2.

Prof. V. G. Jhingran's Tests

(Specimen of questions)

१—प्रेम का उलटा कौन शब्द है ?

१. समानता, २. क्रोध, ३. घृणा, ४. अजीब, ५. प्रेमी। ( )

२—सोने की कीमत चाँदी से ज्यादा होती है क्यों कि वह—

१. अधिक भारी होता है, २. अधिक सुन्दर होता है, ३. अधिक सख्त होता है, ४. अधिक पीला होता है, ५. अधिक नहीं मिलता है। ( )

३—नीचे लिखी कहावतों में से किसका अर्थ है—नौ दो ग्यारह हो जाना।

१—नौ नकद न तेरह उधार।

२—न नौ मन तेल होगा न राधा नाचेंगी।

३—एक-एक ग्यारह होते हैं।

४—साँच को आँच नहीं।

५—तीन तेरह हो गये। ( )

४— पिता अपने पुत्र की अपेक्षा—

१. बुद्धिमान्, २. मज़बूत, ३. धनवान्, ४. लम्बा, ५. अनुभवी होता है। ( )

५—नीचे लिखी क्रमिक संख्याओं में एक संख्या ग़लत है, वह कौन-सी है ?

२, ७, ३, ८, ४, ९, ५, १०, ६, १२।

६—यह कहना कि पत्थर को जान होती है—

१. बिल्कुल असंभव, २. धोखेमें डालनेवाला, ३. बेतुका,
४. शरारत से भरा हुआ, ५. यक़ीन करने के लायक है। ( )

७—अगर एक लड़का ½ सेकेण्ड में ४ फुट दौड़ सकता है तो वह २० सेकेण्ड में कितने फुट दौड़ेगा ? ( )

८—नीचे लिखी पाँच चीजों में कौन सी चीज अन्य चार से भिन्न है—

१. कुल्हाड़ी, २. चाकू, ३. उस्तरा, ४. हथौड़ा, ५. कैंची। ( )

९—अगर २४ इञ्च कपड़ा धुलने पर २२ इञ्च हो जाता है तो ६० इञ्च कपड़ा कितना सिकुड़ेगा ? ( )

१०—घर में सदा रहता है।

१. बाप, २. फ़र्श, ३. किवाड़, ४. लड़ाई, ५. गन्दगी। ( )

११—नीचे लिखे शब्दों में कौन शब्द इसी वर्ग में है जिसमें ये तीन शब्द हैं—

सुखी, डर, क्रोध।

१. आरत, २. स्फूर्ति, ३. घृणा, ४. जीवन, ५. सुनना। ( )

१२—कौन सा शब्द "सफ़लता" का द्योतक है।

१. धन, २. शक्ति, ३. यश- ४. भक्ति, ५. व्यवसाय। ( )

१३—अगर नीचे दो वाक्य ठीक हैं तो तीसरा कैसा है—

परिश्रम से मनुष्य धनी हो सकता है। राम परिश्रमी है। राम धनी हो जायगा।

१. सही, २. गलत, ३. न सही न गलत। ( )

१४—हवा और तूफ़ान में वही सम्बन्ध है जो रेंगने और—

१. लुढ़कने, २. उड़ने, ३. खड़े होने, ४. दौड़ने, ५. घुटने चलने में है। ( )